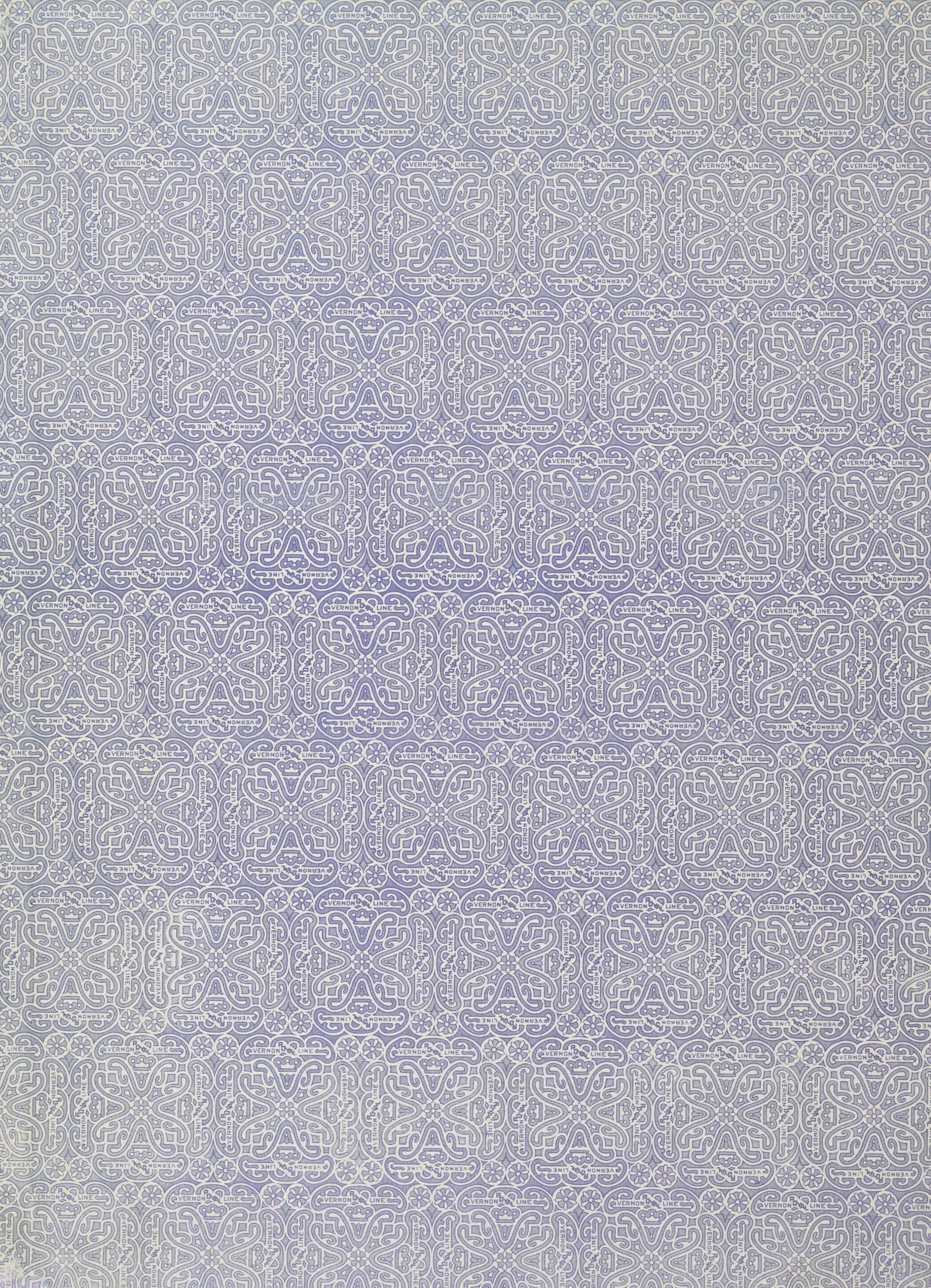
VERNON LINE

Phrynosoma
m'calli

Phrynosoma
m'calli

UNIVERSITY OF CALIFORNIA, RIVERSIDE

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF BIOLOGY
RIVERSIDE, CALIFORNIA 92521

November 8, 1982

Dr. F. Harvey Pough
Department of Biology
Virginia Polytechnic Institute
and State University
Blacksburg, Virginia 24061-0794

Dear Harvey:

This is in response to your recent letter regarding data for Gerrhonotus multicarinatus and Phrynosoma m'calli. I do not have any for Gerrhonotus. The only people I can think of that might have some information on that species would be Glenn Stewart at California State Polytechnic University at Pomona, Bayard Brattstrom at California State University at Fullerton, or the herpetologists at the Los Angeles County Museum.

However, I do have considerable data on P. m'calli. I have been so busy trying to acquire land to add to the U.C. Natural Land and Water Reserves System that these data still are only in my files. So much time has passed since they were collected (1959-1964), I'm somewhat embarrassed to publish them at this late date. Nevertheless, the information you requested was easily obtained from the files. I hope that these numbers will be helpful for your project.

The hatchling data are for young of the year that were captured in the field in late summer and early fall (July, August, and September.) They are not the measurements from young animals at the time they left the egg. However, these measurements (at least the minimum measurements) should approximate those at the time of hatching. The enlarged post-anal scales in males made it quite easy to sex even young animals. It was a bit difficult to determine the maximum snout-vent length for juveniles. I settled on 50 mm. because only a very few were found at that size by the end of summer, but there were some animals at each of the sizes below that figure. The minimum S-V size of reproductively active animals (motile sperm in vas deferens, eggs in oviducts) for both sexes was 63 mm. Therefore, all animals that measured 63 mm. or more were included in the adult sample. These adult S-V measurements were obtained at the time the animals were autopsied for the reproductive cycle study I conducted. The weights were obtained from newly captured animals that were used for live experiments.

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https://archive.org/details/lizardtemperatur00mayh_0

At the time I did the project, Phrynosoma m'calli was the third most abundant lizard in the area between Brawley and the Algodones Dunes. Consequently, it did not seem inappropriate to collect this number for such an investigation. Little did we know that the population of this species would drop to the present level.

At any rate, here is the information you requested:

	Hatchlings		Adults	
	Male	Female	Male	Female
		Snout-Vent length (mm)		
N=	29	30	148	157
Range=	29-48	33-50	63-83	63-88
Mean-	37	40	73	75
		Weight (grams)		
N=	29	30	71	72
Range=	1.9-4.7	1.5-5.6	7.9-19.9	8.1-24.3
Mean=	3.0	3.2	13.1	14.2

Sincerely,

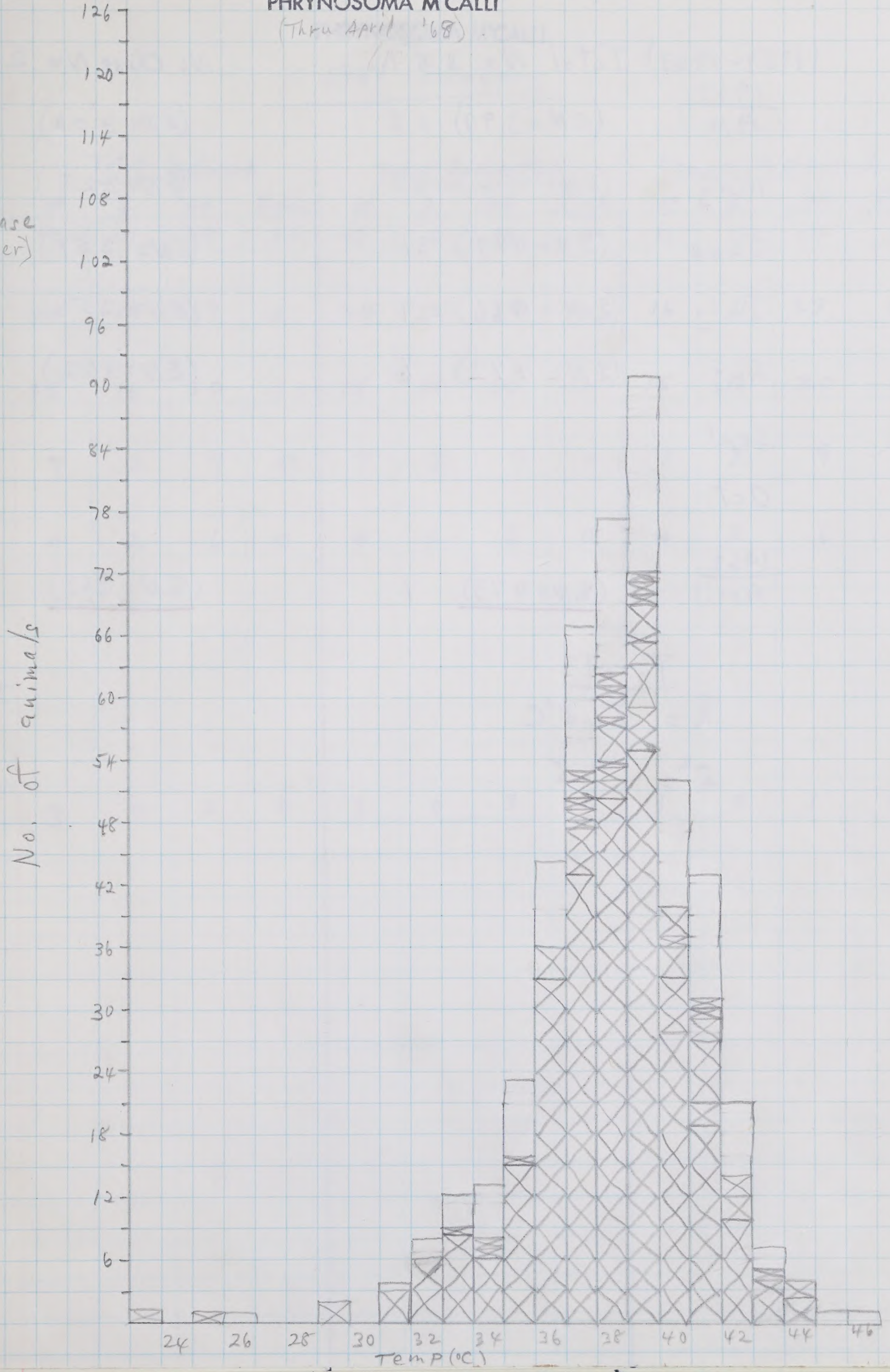
Wilbur W. Mayhew
Professor of Zoology

WWM:rc

PHRYNOSOMA M'CALLI

(Thru April '68)

☒ = No chase
(see over)



(1959-1963)	Total $N = 381$		No Chase $N = 284$	
1967 April	$(\Sigma N = 399)$	18	$(\Sigma N = 302)$	18
May	$(\Sigma N = 426)$	27	$(\Sigma N = 325)$	23
June	$(\Sigma N = 457)$	31	$(\Sigma N = 351)$	26
July	$(\Sigma N = 466)$	9	$(\Sigma N = 356)$	5
Aug.	$(\Sigma N = 472)$	6	$(\Sigma N = 362)$	6
Sept.				
Oct.				
1968 April	$(\Sigma N = 473)$	1	$(\Sigma N = 363)$	1

Total

$\bar{X} = 37.8°C$

$S^2 = 7.5$

PHRYNOSOMA M'CALLI

1967 Summary

	Total Captured				Total Dissected				Temps. Measured			
Month	♂	♀	Ad	Imm	♂	♀	Ad	Imm	♂	♀	Ad	Imm
April	13	7	19	1	12	7	18	0	11	7	17	1
May	24	15	39	0	24	15	39	0	16	11	27	0
June	15	16	30	1	15	16	30	1	15	16	30	1
July	7	2	9	0	7	2	9	0	7	2	9	0
Aug.	4	2	6	0	4	2	6	0	4	2	6	0
Sept.												
Oct.												
1968												
April	3	0	3	0	3	0	3	0	1	0	1	0

P. micalli - Captures west of Calamis

6	7	8	9	10	11	12	13	14
1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	
		1	1	1	1	1		
		1	1	1	1	1		
		1	1	1	1	1		
			1	1				
				1				
				1				
				1				

underlined = "no chase"
(29.0) = night temp.
[32.0] = dug out of sand

Phrynosoma m'calli Temps (By Month)

February

X	X^2
36.2	1310.44

Temps. taken by Lyn Rath

39.0	1521.00
37.5	1406.25
37.0	1369.00
37.5	1406.25
36.5	1332.25
35.6	1267.36
33.0	1089.00
36.5	1332.25
36.5	1332.25
36.2	1310.44
37.6	1413.76
37.5	1406.25

$N = 13$

$\Sigma X = 476.6$

$\Sigma X^2 = 17,496.5$

$\overline{X} = 36.66$

$\overline{X}^2 = 1343.75$

$S^2 = 2.12$

$S.E. = \sqrt{.163} = .404$

(P. m'calli Paper on Temperature)

1) Bogert, C. M., & R. Martin del Campo. (1956) (card #3472)

2) DeWitt, C. 1962. Amer. Zool., 2:403. (see Amphiboluras paper)

3) Cole (1943): card #2546.

Phrynosoma m'calli Temps. (By Month)

March

X	X^2
38.0	1444.00
37.0	1369.00
36.2	1310.44

N = 3

$\Sigma x = 111.2$

$\Sigma x^2 = 4123.44$

$\bar{x} = 37.06$

$(\bar{x})^2 = 1373.44$

Phrynosoma m'calli Temps. (By Month)

April

X	X^2	X	X^2	X	X^2
36.2	1310.44	37.8	1428.84		
37.0	1369.00	39.2	1536.64		
36.4	1324.96	37.0	1369.00		
41.6	1730.56	38.0	1444.00		
37.4	1398.76	38.6	1489.96		
34.5	1190.25	40.0	1600.00		
38.2	1459.24	38.0	1444.00		
37.5	1406.25	38.6	1489.96		
38.6	1489.96	39.0	1521.00		
39.2	1536.64	32.0	1024.00		
37.2	1383.84	36.0	1296.00		
33.8	1142.44	43.6	1900.96		
41.6	1730.56	41.0	1681.00		
31.4	985.96	39.0	1521.00		
36.8	1354.24	37.6	1413.76		
33.8	1142.44	39.6	1568.16		
33.0	1089.00	39.2	1536.64		
33.2	1102.24	41.6	1730.56		
36.5	1332.25	40.0	1600.00		
36.6	1339.56				
38.8	1505.44				
35.2	1239.04				
ΣX =	ΣX^2 =				
N=22 804.5	29,563.1				

N = ~~25~~

ΣX = ~~1000~~ 804.5

ΣX^2 = ~~29563.1~~ 38556.4

X	X^2
39.0	1521.00
36.6	1339.56
43.6	1900.96
39.9	1592.01
39.5	1560.25
43.0	1849.00
38.8	1505.44
39.6	1568.16
39.6	1568.16
40.6	1648.36
36.6	1339.56
44.4	1971.36
40.0	1600.00
40.8	1664.64
37.0	1369.00
38.8	1505.44
39.6	1565.16
37.0	1369.00
39.2	1536.64

N = 27

ΣX =

ΣX^2 =

$\bar{X}$ =

$(\bar{X})^2$ =

45.6	2079.36	31.8	1011.24
38.8	1505.44		
39.8	1584.04		
39.0	1521.00		
38.4	1474.56		
39.6	1568.16		
39.4	1552.36		

N = 48

ΣX = 1820.7

ΣX^2 = 69,430.74

$\bar{X}$ = 37.93

$(\bar{X})^2$ = 1438.68

S^2 =

S.E. =

Phrynosoma m'calli Temps. (By Month)

May

X	X^2	X	X^2	X	X^2
41.8	1747.24	36.0	1296.00	38.0	1444.00
40.9	1672.81	40.0	1600.00	39.0	1521.00
40.6	1648.36	39.6	1568.16	39.2	1536.64
40.8	1664.64	39.4	1552.36	38.8	1505.44
39.0	1521.00	34.4	1183.36	38.0	1444.00
40.2	1616.04	40.2	1616.04	37.4	1398.76
39.6	1568.16	40.4	1632.16	40.8	1664.64
38.8	1505.44	37.0	1369.00	36.6	1339.56
39.0	1521.00	24.6	605.16	40.8	1664.64
36.4	1324.96	30.6	936.36	39.6	1568.16
36.8	1354.24	33.0	1089.00	39.8	1584.04
37.6	1413.76	32.8	1075.84	42.4	1797.76
38.8	1505.44	33.6	1128.96		
37.8	1428.84	34.6	1197.16		
36.0	1296.00	35.4	1253.16		
35.6	1267.36	38.0	1444.00		
35.8	1281.64	39.0	1521.00		
37.2	1383.84	38.6	1489.96		
38.4	1474.56	36.4	1324.96		
38.0	1444.00	37.0	1369.00		
39.0	1521.00	38.6	1489.96		
38.2	1459.24	37.4	1398.76		
39.8	1584.04	36.8	1354.24		
35.0	1225.00	40.0	1600.00		
39.0	1521.00	41.0	1681.00		
36.8	1354.24	39.4	1552.36		
$N=26$ $\Sigma X = 996.9$	$\Sigma X^2 = 38,263.8$	40.0	1600.00		
		40.0	1600.00		
42.0	1764.00	40.8	1664.64		
45.2	2043.04	39.0	1521.00		
37.8	1428.84	38.8	1505.44		

$n = 71$

$\Sigma X = 3920.1$

$\Sigma X^2 = 104,5$

$\bar{X} = 38,31$

$\bar{\bar{X}} = 1467.65$

$n = 45$

$\Sigma X = 1721.2$

$\Sigma X^2 = 66,318.4$

$S^2 = 5,43$

$S.E = \sqrt{1.076} = .276$

41.2	38.5	
42.0	36.8	
36.2	35.6	
35.6	31.6	
40.2	34.0	
35.2	40.0	
41.0	41.0	
41.0	37.2	
38.4	41.6	
41.0	36.0	
40.8	40.0	
39.5	40.8	
39.2		
39.0		
39.2		

Phrynosoma m'calli Temps. (By Month)

June

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
40.8	1664.64	38.0	1444.00	40.0	1600.00	39.0	1521.00	39.8	
41.2	1697.44	39.8	1584.04	42.4	1797.76	37.3	1391.29	41.0	
38.2	1459.24	36.8	1354.24	37.6	1413.76	38.7	1497.69	41.2	
38.6	1489.96	38.6	1489.96	37.0	1369.00	38.0	1444.00	39.6	
41.2	1697.44	39.4	1552.36	38.2	1459.24	37.0	1369.00	40.8	
37.5	1406.25	36.4	1324.96	35.9	1288.81	40.0	1600.00	39.4	
37.2	1383.84	37.0	1369.00	38.2	1459.24	40.6	1648.36	38.0	
37.5	1406.25	38.4	1474.56	36.4	1324.96	35.8	1281.64	38.2	
38.0	1444.00	39.2	1536.64	37.8	1428.84	37.0	1369.00	37.8	
29.2	852.64	36.4	1324.96	36.0	1296.00	40.0	1600.00	38.4	
38.4	1474.56	35.2	1239.04	38.3	1466.89	38.8	1505.44	38.0	
37.2	1383.84	37.2	1383.84	38.0	1444.00	37.0	1369.00	40.0	
38.0	1444.00	37.8	1428.84	41.0	1681.00	36.8	1497.76		
37.0	1369.00	35.2	1239.04	$n = 71$				40.5	
38.2	1459.24	37.8	1428.84	$\Sigma x = 2705.9$				39.4	
39.0	1521.00	36.7	1346.89	$\Sigma x^2 = 103437.8$				43.0	
35.8	1281.64	38.8	1505.44	(1967)		38.0		39.0	
36.8	1354.24	37.6	1413.76			37.2			
37.4	1398.76	35.8	1281.64			39.0			
37.0	1369.00	39.0	1521.00			37.0			
36.8	1354.24	40.0	1600.00			38.5			
34.8	1211.04	43.4	1883.56			40.0			
38.3	1466.89	37.4	1398.76			41.2			
38.6	1489.96	36.8	1354.24			41.0			
39.0	1521.00	36.0	1296.00			42.0			
38.7	1497.69	40.6	1648.36			42.0			
38.8	1505.44	43.3	1874.89			33.5			
$\Sigma X =$	$\Sigma X^2 =$	39.8	1584.04			37.2			
$N = 27$ 1019.2	38,603.2	39.6	1568.16			35.0			
		40.6	1648.36			38.6			
		41.3	1705.69			38.8			

Phrynosoma m'calli Temps. (By Month)

July

X	X^2	X	X^2	X	X^2
40.4	1632.16	39.0	1521.00	37.4	
36.6	1339.56	39.5	1560.25	37.0	
38.0	1444.00	41.2	1697.44	38.0	
38.4	1474.56	38.0	1444.00	38.5	
42.2	1780.84	26.2	686.44	37.6	
42.0	1764.00	35.0	1225.00	39.5	
42.0	1764.00	35.2	1239.04	41.2	
33.0	1089.00	35.8	1281.64	41.6	
32.6	1062.76	36.2	1310.44	42.6	
33.2	1102.24	39.4	1552.36		
42.8	1831.84	36.5	1332.25		
44.0	1936.00	37.0	1369.00		
41.0	1681.00	38.0	1444.00		
41.8	1747.24	38.5	1482.25		
35.6	1267.36	39.8	1584.04		
33.0	1089.00	$\Sigma X =$ 1728.9	$\Sigma X^2 =$ 65,594.1		
31.2	973.44	$N = 46$			
32.0	1024.00				
30.9	954.81	38.5	1482.25		
38.0	1444.00	38.6	1489.96		
38.0	1444.00	38.6	1489.96		
37.7	1421.29	$N = 3$			
40.4	1632.16	$\Sigma X = 115.7$			
38.8	1505.44	[illegible]			
41.6	1730.56				
40.8	1664.64				
38.6	1489.96				
41.2	1697.44				
34.4	1183.36				
36.2	1310.44				
37.2	1383.84				

$N = 49$

$\Sigma X = 1844.6$

$\Sigma y^2 =$ [illegible]

$\bar{X} =$ [illegible]

$\bar{X} = 1416.76$

$S^2 =$ [illegible]

$S.E. = \sqrt{.27} =$ [illegible]

Phrynosoma m'calli Temps. (By Month)

August

X	X^2	X	X^2	X	X^2
38.0	1444.00	35.4	1253.16	37.8	1428.84
38.0	1444.00	35.5	1260.25	37.4	1398.76
39.0	1521.00	36.6	1339.56	41.0	1681.00
36.4	1324.96	36.0	1296.00	35.8	1281.64
37.6	1413.76	38.0	1444.00	38.4	1474.56
36.0	1296.00	39.0	1521.00	39.2	1536.64
38.6	1489.96	40.2	1616.04	40.0	1600.00
39.0	1521.00	41.0	1681.00	39.6	1568.16
38.8	1505.44	37.2	1383.84	37.6	1413.76
39.2	1536.64	38.8	1505.44	33.4	1115.56
36.0	1296.00	34.7	1204.09	$\Sigma X =$ 2661.0	$\Sigma X^2 =$ 99,994.9
38.5	1482.25	34.6	1197.16	$N = 71$	
39.0	1521.00	35.8	1281.64	without night animal	
39.0	1521.00	35.8	1281.64		
36.6	1339.56	35.8	1281.64	40.6	1648.36
37.2	1383.84	33.6	1128.96	41.5	1722.25
39.0	1521.00	35.0	1225.00	37.0	1369.00
34.2	1169.64	38.2	1459.24	36.0	1296.00
38.2	1459.24	32.5	1056.25	35.5	1260.25
39.8	1584.04	33.0	1089.00	38.4	1474.56
29.0	841.00	36.2	1310.44	$n = 6$	
38.0	1444.00	38.2	1459.24	$\Sigma X =$ [illegible]	
37.4	1398.76	42.2	1780.84	$\Sigma X^2 = 8770.42$	
38.0	1444.00	40.0	1600.00		
37.8	1428.84	41.0	1681.00		
39.5	1560.25	41.6	1730.56		
40.0	1600.00	39.4	1552.36		
39.5	1560.25	36.8	1354.24		
33.8	1142.44	34.6	1197.16		
35.4	1253.16	35.0	1225.00		
34.6	1197.16	37.0	1369.00		

X	X^2
33.5	
37.8	
38.8	
36.8	
38.0	
39.2	

$N = 77$

$\Sigma X = 2874.8$

$\Sigma X^2 = 10876.17$

$\bar{X} = 37.34$

$\bar{X}^2 = 1401.5$

$s^2 = 4.09$

$SE = \sqrt{.053}$

$= .230$

Phrynosoma m'calli Temps. (By Month)

September

X	X^2	x	x^2
37.5	1406.25	32.0	1024.00
39.6	1568.16	N=1	
41.2	1697.44	$\Sigma x = 32.0$	
38.8	1505.44	$\Sigma x^2 = 1024.00$	
37.2	1383.84		
39.0	1521.00		
38.8	1505.44		
41.0	1681.00		
41.2	1697.44		
38.0	1444.00		
39.0	1521.00		
38.2	1459.24		
38.5	1482.25		
37.2	1383.84		
42.8	1831.84		
36.0	1296.00		
39.2	1536.64		
38.8	1505.44		
39.6	1568.16		
34.2	1169.64		
37.0	1369.00		
39.6	1568.16		
36.2	1310.44		
$\Sigma X =$	$\Sigma X^2 =$		
888.6	34,441.6		

N = 23

$n = 24$

$\Sigma x = 9$

$\Sigma x^2 = 35,435.$

$\bar{X} =$

$(\bar{X})^2 = 1470.72$

$s^2 = 6.01$

$S.E = \sqrt{.25}$

$= .50$

Phrynosoma m'calli Temps. (By Month)

October

X	X^2
(23.0)	529.00
32.2	1036.84
35.2	1239.04
39.8	1584.04
38.6	1489.96
36.5	1332.25

without night animal

$\Sigma X =$ 182.3 $\Sigma X^2 =$ 7211.1

N = 5

37.8 1428.84

37.8 1428.84

40.0 1600.00

41.6 1730.56

41.0 1681.00

36.0 1296.00

$\Sigma x =$ 454.3

$\Sigma x^2 =$ 17276.31

$N = 12$

$\bar{X} = 37.8$

$\Sigma(X^2) = 1428.84$

$s^2 = 11.83$

$S.E = \sqrt{.986} = 1$

Totals (thru 1962)

N = 223 (+ 2 night temps.)

$\Sigma X = 8392.6$

$\Sigma X^2 = 317,765.2$

$\bar{X} = 37.6$

$\bar{X}^2 = 1413.76$

1963

N = 124

$\Sigma X = 4771.0$

$\Sigma X^2 = 184,266.0$

$\bar{X} = 38.47$

$= 1479.94$

1963

April – 26

May – 44 (+1 nite temp)

June – 44

July – 3

Aug. – 6

Sept. – 1

Total = 124

1964

June – 13

April – 1

Phrynosoma m'calli Temps

(By Sex)

♂

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
42.8	1831.84	36.8	1354.24	33.2	1102.24	37.6	1413.76	40.0	1600.00	37.4	1398.76
37.2	1383.84	37.5	1406.25	35.2	1239.04	33.4	1108.89	40.0	1600.00	36.8	1354.24
39.0	1521.00	37.2	1383.84	35.6	1267.36	38.0	1444.00	37.0	1369.00	40.6	1648.36
38.8	1505.44	37.5	1406.25	35.8	1281.64	39.0	1521.00	24.6	605.16	41.3	1705.69
34.6	1197.16	38.0	1444.00	38.4	1474.56	36.4	1324.96	33.0	1089.00	42.4	1797.76
35.8	1281.64	37.2	1383.84	38.0	1444.00	36.0	1296.00	32.8	1076.84	37.6	1413.76
35.0	1225.00	42.2	1780.84	39.0	1521.00	38.6	1489.96	34.6	1197.16	37.0	1369.00
33.0	1089.00	41.0	1681.00	39.8	1584.04	38.8	1505.44	37.0	1369.00	35.9	1288.81
38.2	1459.24	35.6	1267.36	35.0	1225.00	39.2	1536.64	38.6	1489.96	38.2	1459.24
41.6	1730.56	33.0	1089.00	36.8	1354.24	39.0	1521.00	40.0	1600.00	36.0	1296.00
38.5	1482.25	31.2	973.44	36.8	1354.24	39.0	1521.00	39.4	1552.36	38.3	1466.89
36.0	1296.00	40.4	1632.16	37.4	1398.76	$T = 3663.9$	$T = 138,929.0$	40.0	1600.00	37.0	1369.00
37.4	1398.76	38.8	1505.44	37.0	1369.00	$\bar{X} = 37.7$		40.8	1664.64	36.0	1296.00
38.8	1505.44	40.8	1664.64	36.8	1354.24	$\bar{X}^2 = 1421.3$		42.0	1764.00		
37.8	1428.84	34.4	1183.36	38.3	1466.89	$N = 97$		45.2	2043.04		
40.4	1632.16	37.2	1383.84	39.0	1521.00			37.8	1428.84		
38.0	1444.00	39.0	1521.00	38.7	1497.69	30.6	936.36	38.0	1444.00		
40.9	1672.81	38.0	1444.00	38.8	1505.44	45.6	2079.36	39.2	1536.64		
40.8	1664.64	40.0	1600.00	38.5	1482.25	39.6	1568.16	38.8	1505.44		
38.8	1505.44	38.0	1440.00	38.6	1489.96	39.4	1552.36	38.0	1444.00		
40.8	1664.64	39.0	1521.00	35.2	1239.04	38.6	1489.96	39.6	1568.16		
38.4	1474.56	38.8	1505.44	~~$N = 81$ $\Sigma = 115,713.7$~~		38.0	1444.00	39.8	1584.04		
37.8	1584.04	37.2	1383.84	~~$\Sigma = 3055.1$~~		38.6	1489.96	37.8	1428.84		
39.6	1568.16	41.2	1697.44	~~$\bar{X} = 37.7$~~		39.0	1521.00	38.4	1474.56		
38.0	1444.00	32.2	1036.84	~~$\bar{X}^2 = 1421.3$~~		32.0	1024.00	35.2	1239.04		
37.0	1369.00	39.8	1584.04	39.4	1552.36	36.0	1296.00	37.2	1383.84		
37.0	1369.00	41.6	1730.56	35.0	1225.00	43.6	1900.96	35.2	1239.04		
36.4	1324.96	31.4	985.96	41.0	1681.00	37.6	1413.76	38.8	1505.44		
41.6	1730.56	36.8	1354.24	38.4	1474.56	39.2	1536.64	35.8	1281.64		
36.4	1324.96	33.0	1089.00	40.0	1600.00	41.6	1730.56	39.0	1521.00		

$N = 56$

$\Sigma X = 2142.9$

$\Sigma X^2 = 82445.11$ without Nian T

$N = 153$

$\Sigma X = 5806.8$

~~$\bar{X} = 37.95$~~

~~$(\bar{X})^2 = 1440.20$~~

See next page

Phrynosoma m'calli Temps.

(By Sex)

X	X^2
37.3	1391.29
38.0	1444.00
37.0	1369.00
40.0	1600.00
35.8	1281.64
37.0	1369.00
36.8	
37.0	1369.00
36.8	1354.24

$N = 162$

$\Sigma x = 6144.5$

$\Sigma x^2 = 234017.12$

$\bar{X} = 37.93$

$\bar{X}^2 = 1437.92$

$S^2 = 6.92$

$S.E. = \sqrt{.043}$

$= .274$

♂

(1967)

X	X^2	X	X^2
36.6	1339.56	41.0	
43.6	1900.96	42.0	
39.9	1592.01	33.5	
43.0	1849.00	37.2	
39.6	1568.16	35.0	
36.6	1568.16	38.6	
40.0	1600.00	38.8	
37.0	1369.00	39.8	
38.8	1505.44	41.0	
39.6	1568.16	38.4	
37.0	1369.00	40.0	
37.2		39.4	
36.0		37.4	
40.0		37.0	
40.8		38.5	
36.2		37.6	
35.6		39.5	
35.2		41.6	
41.0		42.6	
41.0		33.5	
38.4		37.8	
38.5		38.8	
36.8		38.0	
35.6		39.2	
31.6			
34.0			
41.0			
39.0			
37.0			
38.5			

Phrynosoma m'calli: Temps

(By sex) (N = ~~[illegible]~~)

♀

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
32.6	1062.76	36.6	1339.56	32.0	1024.00	37.2	1383.84	35.[illegible]	1281.64	41.0	1681.00
38.[illegible]	1444.00	39.0	1521.00	30.1	954.81	33.8	114244	37.2	1536.64	39.0	1521.00
39.0	1521.00	36.2	1310.44	38.0	1444.00	33.8	1142.44	39.6	1568.16	39.6	1568.16
36.2	1459.24	41.6	1747.241	38.0	1444.00	36.5	1332.25	36.0	1444.00	36.0	1296.00
36.2	1310.44	40.6	1648.36	37.7	1421.29	36.6	1339.56	36.8	1354.24	39.6	1568.16
38.0	1444.00	37.0	1521.00	41.6	1730.56	38.8	1505.44	37.6	1413.76	39.4	1552.36
26.2	686.44	40.2	1616.04	38.6	1489.96	37.2	1383.84	37.0	1521.00	34.4	1183.36
34.1	1204.09	39.6	1568.16	41.2	1697.44	38.2	1459.24	36.0	1296.00	33.6	1128.96
35.8	1281.64	37.0	1521.00	36.2	1310.44	37.0	1521.00	38.5	1482.25	38.0	1444.00
35.8	1281.64	41.2	1697.44	37.5	1560.25	35.8	1281.64	36.6	1331.56	39.0	1521.00
33.6	1128.96	38.2	1459.24	41.2	1697.44	34.8	1211.04	37.2	1383.84	38.6	1489.96
38.2	1459.24	38.6	1489.96	37.4	1398.76	38.6	1489.96	34.2	1169.64	36.4	1324.96
32.5	1056.25	34.2	1169.64	38.0	1444.00	38.6	1489.96	37.0	1369.00	37.4	1398.76
36.2	1310.44	38.2	1459.24	37.8	1428.84	35.0	1225.00	39.6	1568.16	36.8	1354.24
42.2	1780.84	29.0	841.00	37.5	1560.25	35.8	1281.64	36.2	1310.44	41.0	1681.00
40.0	1600.00	37.5	1406.25	37.5	1560.25	36.2	1310.44	T=49046	T=184,830.5	40.0	1600.00
41.0	1681.00	23.0	529.00	33.8	1142.44	39.4	1552.36	$\bar{X}$=37.4		39.0	1521.00
37.2	1383.84	37.6	1413.76	35.4	1253.16	36.5	1332.25	$\bar{X}^2$=1398.76		38.8	1505.44
42.8	1831.84	41.2	1697.44	34.6	1197.16	37.0	1369.00	N=131		39.0	1521.00
39.2	1536.64	37.4	1398.76	35.4	1253.16	38.0	1444.00			37.4	1398.76
38.8	1505.44	38.4	1474.56	36.5	1260.25	38.5	1482.25	35.4	1253.16	40.8	1664.64
37.6	1568.16	38.0	1444.00	36.6	1339.56	39.8	1584.04	38.8	1505.44	36.6	1339.56
38.6	1489.96	37.0	1369.00	36.0	1339.56	~~N=112~~	~~T=~~	39.8	1584.04	40.8	1664.64
36.5	1332.25	36.2	1459.24	41.2	1616.04	~~T=4196.5~~		39.0	1521.00	42.4	1797.76
34.5	1190.25	42.0	1764.00	41.0	1681.00	~~$\bar{X}$=37.5~~		38.4	1474.56	39.8	1584.04
38.2	1458.24	42.0	1264.00	41.2	1697.44	~~$\bar{X}^2$=1406.8~~		37.8	1428.84	36.8	1354.24
37.5	1406.25	33.0	1089.00	37.0	1521.00	34.6	1197.16	39.2	1536.64	38.6	1489.96
38.6	1489.96	33.2	1102.24	38.2	1505.44	37.0	1369.00	37.0	1369.00	39.4	1552.36
37.2	1536.64	44.0	1936.00	41.0	1681.00	37.5	1406.25	38.0	1444.00	36.4	1324.96
36.0	1296.00	41.8	1747.24	35.2	1239.04	37.4	1398.76	40.0	1600.00	37.0	1369.00

Phrynosoma m'calli Temps

(by sex)

♀

x	x^2	x	x^2
39.2	1536.64	~~31.8~~	~~1011.24~~
36.4	1324.96		
37.8	1428.84		
37.8	1428.84		
36.7	1346.89	31.8	1011.24
37.6	1413.76	39.0	1521
40.0	1600.00	38.7	1497.69
43.4	1883.56	40.6	1649.
36.0	1296.00	40.0	
43.3	1874.89		
39.8	1584.04		
39.6	1568.16		
40.6	1648.36		
40.0	1600.00		
38.2	1459.24		
36.4	1324.96		
37.8	1428.84		
38.0	1444.00		
41.0	1681.00		
40.6	1648.36		
41.5	1722.25		
35.5	1260.25		
38.4	1474.56		
32.0	1024.00		

$N = 64$

$\Sigma x = 2463.6$

$\Sigma x^2 = 95,119.36$

$N = 195$

$\Sigma x = 7368.$

$\Sigma X^2 = 279,$

$N = 200$

$\Sigma x = 7558.3$

$\Sigma x^2 = 287,228.$

$\bar{X} = 37.79$

$N\bar{x}^2 = 1428.08$

$s^2 = 8.10$

$S.E. = \sqrt{.04}$

$= .20$

(1967)

x	x^2	x	x^2
39.0	1521.00	40.5	
39.5	1560.25	43.0	
38.8	1505.44	39.0	
39.6	1565.16	41.2	
40.6	1648.36	38.0	
44.4	1971.36	36.8	
40.8	1664.64	39.2	

41.6

41.2

42.0

40.2

41.0

40.8

39.5

39.2

39.0

39.2

40.0

38.0

39.2

40.0

41.2

42.0

41.2

39.6

40.8

39.4

38.0

38.2

37.8

38.0

Phrynosoma m'calli: Temp.

(By Age)

Adult

> 63 mm

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
37.2	1383.84	37.7	1421.29	41.0	1681.00	40.6	1648.36	38.0	1444.00	39.2	1536.64
38.4	1474.56	40.4	1632.16	41.2	1697.44	39.0	1521.00	37.0	1369.00	40.0	1600.00
38.0	1444.00	38.8	1505.44	37.2	1383.84	40.2	1616.04	38.2	1459.24	39.6	1568.16
39.0	1521.00	41.6	1730.56	39.0	1521.00	39.6	1568.16	42.2	1780.84	37.6	1413.76
38.2	1459.24	40.8	1664.64	38.8	1505.44	38.8	1505.44	42.0	1764.00	38.0	1444.00
39.8	1584.04	38.6	1489.96	41.0	1681.00	39.0	1521.00	42.0	1764.00	38.0	1444.00
35.0	1225.00	41.2	1697.44	41.2	1697.44	40.8	1664.64	33.0	1089.00	37.4	1552.36
39.0	1521.00	34.4	1183.36	32.2	1036.84	41.2	1697.44	32.6	1062.76	39.0	1521.00
36.8	1354.24	36.2	1310.44	35.2	1239.04	38.2	1459.24	33.2	1102.24	36.6	1339.56
35.8	1281.64	37.2	1383.84	39.8	1584.04	38.6	1489.96	42.8	1831.84	37.2	1383.84
36.8	1354.24	39.0	1521.00	31.4	985.96	38.4	1474.56	44.0	1936.00	34.2	1169.64
37.4	1398.76	31.5	1560.25	36.8	1354.24	34.2	1169.64	35.0	1225.00	37.0	1369.00
37.0	1369.00	41.2	1697.44	36.5	1332.25	38.2	1459.24	35.2	1239.04	39.6	1568.16
36.8	1354.24	38.0	1444.00	36.6	1339.56	39.8	1584.04	35.8	1281.64	T=6024.2	T=229,268.2
34.8	1211.04	37.4	1398.76	35.2	1239.04	29.0	841.00	36.2	1310.44	$\bar{X}$=37.9	
38.3	1466.89	38.0	1444.00	38.8	1505.44	37.5	1406.25	39.4	1552.36	$\bar{X}^2$=1436.4	
38.6	1489.96	37.8	1428.84	35.6	1267.36	38.0	1444.00	36.5	1332.25	N=159	
38.7	1497.69	39.5	1560.25	38.8	1281.64	37.0	1369.00	37.0	1369.00		
38.8	1505.44	40.0	1600.00	41.8	1747.24	41.6	1730.56	38.0	1444.00		
38.6	1489.96	39.5	1560.25	42.2	1780.84	36.4	1324.96	38.5	1482.25	45.6	2079.36
38.6	1489.96	33.8	1142.44	40.0	1600.00	36.8	1354.24	39.8	1584.04	38.8	1505.44
38.5	1482.25	35.4	1253.16	41.0	1681.00	37.6	1413.76	T= N=141 203,609.1		39.8	1584.04
41.0	1681.00	34.6	1197.16	41.6	1730.56	41.2	1694.44	T=5345.2		39.0	1521.00
35.6	1267.36	35.4	1253.16	40.4	1632.16	37.5	1406.25	$\bar{X}$=37.9		38.4	1474.56
33.0	1089.00	35.5	1260.25	36.0	1339.56	37.2	1383.84	$\bar{X}^2$=1436.4		39.4	1552.36
31.2	973.44	36.6	1339.56	38.0	1444.00	37.5	1406.25	35.0	1225.00	40.0	1600.00
32.0	1024.00	36.0	1296.00	39.0	1521.00	38.0	1444.00	37.0	1369.00	38.0	1444.00
30.9	954.81	38.0	1444.00	36.2	1310.44	37.4	1398.76	37.4	1398.76	38.6	1489.96
38.0	1444.00	39.0	1521.00	41.8	1747.24	38.4	1474.56	35.8	1281.64	39.0	1521.00
38.0	1444.00	40.2	1616.04	40.9	1672.81	37.2	1383.84	38.4	1474.56	43.6	1900.96

Phrynosoma m'calli Temps

(By Age)

S-V
>63 mm

Adult

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
37.6	1413.76	38.8	1505.44	40.0	1600.00	39.0	152				
39.6	1568.16	38.0	1444.00	36.8	1354.24	37.3					
39.2	1536.64	39.0	1521.00	36.0	1296.00	38.7					
40.0	1600.00	39.2	1536.64	40.6	1648.36	38.0					
36.0	1296.00	38.8	1505.44	43.3	1874.89	37.0	136				
39.6	1568.16	37.4	1398.76	39.8	1584.04	40.0					
39.4	1552.36	40.8	1664.64	39.6	1568.16	40.6					
34.4	1183.36	36.6	1339.56	40.6	1648.36	35.8					
37.0	1369.00	40.8	1664.64	41.3	1705.69	37.0					
30.6	936.36	39.6	1568.16	40.0	1600.00	40.0					
33.0	1089.00	39.8	1584.04	42.4	1797.76	38.8					
32.8	1075.84	40.0	1600.00	37.6	1413.76	37.0	1369.0				
33.6	1128.96	37.8	1428.84	37.0	1369.00	36.8					
34.6	1197.16	39.8	1584.04	35.9	1288.81						
35.4	1253.16	36.8	1354.24	38.2	1459.24						
38.0	1444.00	38.6	1489.96	36.4	1324.96						
39.0	1521.00	36.4	1324.96	37.8	1428.84						
38.6	1489.96	37.0	1369.00	38.3	1466.89						
36.4	1324.96	38.4	1474.56	38.0	1444.00						
37.0	1369.00	39.2	1536.64	41.0	1681.00						
38.6	1489.96	36.4	1324.96	40.6	1648.36						
37.4	1398.76	35.2	1239.04	41.5	1722.25						
40.0	1600.00	37.2	1383.84	37.0	1369.00						
41.0	1681.00	37.8	1428.84	36.0	1296.00						
39.4	1552.36	35.2	1239.04	35.5	1260.25						
40.0	1600.00	37.8	1428.84	38.4	1474.56						
40.0	1600.00	36.7	1346.89	36.0	1296.00						
40.8	1664.64	38.8	1505.44	32.0	1024.00						
42.0	1764.00	37.6	1413.76	N = 101							
45.2	2043.04	35.8	1281.64	$\Sigma X = 3,$							
37.8	1428.84	39.0	1521.00	$\Sigma X^2 = 149,064.39$							

PHRYNOSOMA M'CALLI
(Temps., by Age)

S-V
>63 mm

Adult
(1967)

X	X^2	X	X^2	X	X^2
36.6	1339.56	41.0		41.2	
43.6	1900.96	37.2		39.6	
39.9	1592.01	41.6		40.8	
39.5	1560.25	36.0		39.4	
43.0	1849.00	40.0		38.0	
38.8	1505.44	40.8		38.2	
39.6	1568.16	41.2		37.8	
39.6	1568.16	42.0		38.4	
40.6	1648.36	36.2		38.0	
36.6	1339.56	35.6		40.0	
44.4	1971.36	40.2		40.5	
40.0	1600.00	35.2		39.4	
40.8	1664.64	41.0		43.0	
37.0	1369.00	41.0		39.0	
38.8	1505.44	38.0		37.4	
39.6	1568.16	39.2		37.0	
37.0	1369.00	37.0		38.0	
38.4		38.5		38.5	
41.0		40.0		37.6	
40.8		41.2		39.5	
39.5		41.0		41.2	
39.2		42.0		41.6	
39.0		42.0		42.6	
39.2		33.5		33.5	
38.5		37.2		37.8	
36.8		35.0		38.8	
35.6		38.6		36.8	
31.6		38.8		38.0	
34.0		39.8		39.2	
40.0		41.0		39.2	

Phrynosoma m'calli Temps

(By Age)

Immature

S.V.
40 T. 63 mm

1967

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
38.0	1444.00	39.6	1568.16	36.2	1310.44					39.0	1521.00
38.2	1459.24	37.8	1428.84							39.0	1521.00
39.0	1521.00	39.2	1536.64								
33.6	1128.96	37.0	1369.00								
37.2	1383.84	38.0	1444.00								
42.8	1831.84	38.6	1489.96								
31.4	1398.76	32.0	1024.00								
34.5	1190.25	36.0	1296.00								
38.2	1459.24	41.0	1681.00								
37.5	1406.25	39.0	1521.00								
39.2	1536.64	41.6	1730.56								
38.8	1509.44	40.0	1600.00								
37.8	1428.84	24.6	605.16								
36.0	1296.00	36.8	1354.24								
40.8	1664.64	39.0	1521.00								
39.6	1568.16	38.0	1444.00								
37.0	1369.00	42.4	1797.76								
36.4	1324.96	40.0	1600.00								
38.8	1505.44	39.4	1552.36								
37.2	1383.84	43.4	1883.56								
33.8	1142.44	37.4	1398.76								
41.6	1730.56	38.2	1459.24								
33.8	1142.44	36.0	1296.00								
33.0	1089.00	N = 27									
33.2	1102.24	ΣX = 850.4									
39.0	1521.00	ΣX^2 = 32,996.08									
N = 26	T = 36,538.0										

T = 972.4

$\bar{X}$ = 37.4

$\bar{X}^2$ = 1398.8

N = 48

ΣX = 1792.2

ΣX^2 = 67,414.84

$\bar{X}$ = 1400

$\bar{X}^2$ = 1960.02

σ^2 = 7.05

SE = $\sqrt{.147}$

= .383

Phrynosoma m'calli Temp.

(By Age)

Juvenile

0 to 45 mm

1967

X	X^2	X	X^2	X	X^2	X	X^2	X	X^2	X	X^2
37.2	1383.84	34.6	1197.16								
39.0	1521.00	37.8	1428.84								
36.2	1310.44	41.0	1681.00								
38.0	1444.00	33.4	1115.56								
26.2	686.44	36.8	1354.24								
38.8	1505.44	36.4	1324.96								
34.7	1204.09	37.6	1413.76								
34.6	1197.16	36.0	1296.00								
35.8	1281.64	38.6	1489.96								
35.8	1281.64	39.0	1521.00								
35.8	1281.64	38.8	1505.44								
35.0	1225.00	39.2	1536.64								
38.2	1459.24	36.0	1296.00								
32.5	1056.25	38.5	1482.25								
33.0	1089.00	39.0	1521.00								
36.2	1310.44	39.0	1521.00								
38.2	1459.24	36.2	1310.44								
38.5	1482.25	$T=1571.9$	$T=57,921.4$								
36.0	1296.00	$\bar{X}=36.6$									
39.2	1536.64	$\bar{X}^2=1339.6$									
38.8	1505.44	$N=43$									
39.6	1568.16	$S^2=7.5$									
38.6	1489.96	$SE=\sqrt{.176}$									
36.5	1332.25	$=.420$									
38.6	1489.96										
23.0	529.00										
$N=26$	$33,926.2$										
$T=934.0$											
$\bar{X}=35.9$											
$\bar{X}^2=1288.8$											

BEHAVIOR CODE FOR LABORATORY REPTILES

1. In burrow.
2. Under rock.
3. Completely buried in sand.
4. Buried in sand with head exposed.
5. Buried in sand with posterior portions of body exposed.
6. Sitting on rock.
7. Inactive on surface (hugging substrate).
8. Inactive on surface (body off substrate).
9. Actively moving on surface.
10. Bobbing up and down (no other animals responding).
11. Feeding.
12. Drinking.
13. Courting.
14. Mating.

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Glamis
Date Captured: 6/27/61
Sex: ♂

Animal No.: 2
Recorder No.: 1
S-V length (mm): 60
Weight (gms): 8.7

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/10/61	0691	23.5	24.0	7	
	0657	23.5	24.0	8	
	0714	23.8	24.0	4	lights came on
	0719	26.4	25.0	7	
	0730	27.0	31.4	7	
	0740	29.5	33.0	9 & 10	
	0806	31.0	33.2	4	
	0812	30.0	33.8	11	
	0816	34.8	35.0	3	Just buried
	0818	34.2	35.6	4	
	0828	32.2	37.6	13	
	0838	31.5	34.8	4	
	0845	32.5	33.0	4	Buried in same place, from 0838-0855 beside another animal.
	0855	34.5	34.5	10	
	0900	35.2	37.2	4	
	0922	34.0	36.2	4	
	0938	35.2	36.4	4	
	1002	37.0	37.6	9	
	1019	36.0	38.4	4	
	1026	35.8	37.2	4	
	1055	36.2	37.4	4	
	1115	36.2	37.8	4	
	1126	36.0	38.6	7	
	1154	36.0	37.2	3	No animals on surface. 1159-1617 No movement from any animals.
	1415	38.0	38.0	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Glamis
Date Captured: 6/27/61
Sex: ♂

Animal No.: 2
Recorder No.: 1
S-V length (mm): 60
Weight (gms): 8.7

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/10/61	1550	37.0	38.2	3	at 1554 - 1 (one) lizard came to
	1617		38.6	9-13	the surface. at 1617 when the
	1635	40.0	39.8	10	experimental animal came out of
	1718	39.0	39.4	8	the sand it was entangled in
	1747	38.5	40.0	4	the wire and it appeared to be
	1800	38.0	40.0	7	struggling, semi-helpless.
					The animal that was on the
					surface upon seeing the helpless
					animal, attacked it turning it
					over and hitting it on the pectoral
					girdle for 20-30 sec. The experimental
					animal freed itself + re-buried

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Hlamis
Date Captured: 9/17/61
Sex: ♀

Animal No.: 1
Recorder No.: 2
S-V length (mm): 50
Weight (gms): 10.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/10/61	0641	23.5	23.6	7	
	0657	23.2	23.8	7	
	0714	25.2	24.2	7	Lights came on
	0720	29.8	34.4	7	This animal seems very
	0732	33.6	36.2	7	uneasy with the thermocouple
	0742	28.0	35.4	7	
	0808	32.2	38.2	7	
	0820	36.5	37.4	9	
	0840	38.0	34.8	7	Remained in one place on top
	0852	34.5	39.0	7	the sand from 0925-1100
	0859	29.0	34.8	4	
	0925	30.6	32.8	7	
	0939	33.0	37.4	7	
	1003	33.2	37.2	7	
	1020	31.0	35.6	7	
	1045	29.8	33.8	7	
	1100	35.2	35.4	7-10	only 1 other lizard on surface.
	1116	31.5	33.6	7	
	1151	31.0	32.0	3	No movement from this animal
	1415	32.2	32.0	3	from 1151 - 1621
	1530	32.4	32.2	3	
	1553	32.0	32.0	3	
	1621	32.0	32.8	4	
	1636	37.0	38.0	7-9	
	1719	32.0	35.4	7	

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Glamis
Date Captured: 9/17/61
Sex: ♀

Animal No.: 1
Recorder No.: 2
S-V length (mm): 50
Weight (gms): 10.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/10/61	1747	37.0	37.0	7	
	1800	34.0	38.4	7	

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Glamis
Date Captured: 6/25/61
Sex: ♀

Animal No.: 8
Recorder No.: 3
S-V length (mm): 76
Weight (gms): 23.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/10/61	0642	23.3	24.2	7	
	0658	23.2	24.0	8	
	0718	26.0	24.8	7	Lights came on.
	0721	31.5	29.0	7	
	0734	31.2	36.6	7	
	0737	30.2	37.8	10	
	0738	30.0	35.8	3	
	0744	34.6	33.8	7	
	0807	39.0	40.0	7	
	0826	28.0	34.00	11	From 1043-1640 there was
	0830	48.0	38.6	8	no movements from ~~this~~
	0838	43.0	40.0	9	this animal.
	0843	34.0	41.8	7	
	0850	34.5	40.0	7	
	0902	32.5	41.8	9	
	0905	30.5	36.4	7	
	0924	29.0	36.0	7	
	0926	37.9	38.0	10	
	0940	29.0	32.6	3	
	1002	29.8	31.2	4	
	1022	32.4	31.0	4	
	1038	32.0	37.8	9	
	1043	32.0	34.8	3	
	1056	32.2	33.8	3	
	1116	33.0	33.2	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Hlamis
Date Captured: 6/25/61
Sex: ♀

Animal No.: 8
Recorder No.: 3
S-V length (mm): 76
Weight (gms): 23.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/10/61	1153	32.2	34.0	3	No lizards on the surface at this
	1415	33.9	34.4	3	time in this cage.
	1530	34.0	34.6	3	
	1545	33.5	34.4	3	There are now two (2) lizards
					on the surface in this cage,
					the are quite active
	1624	33.5	35.0	3	one more animal on surface
	1640	33.5	35.0	4	Total = 3
	1647	33.5	35.0	10	
	1719	41.5	42.0	8	
	1750	43.0	42.4	9	

Species: PHRYNOSOMA MCALLI
Locality Captured: West of Glamis
Date Captured: 6/27/61
Sex: ♂

Animal No.: 2 (replicate)
Recorder No.: 1
S-V length (mm): 60
Weight (gms): 8.7

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/11/61	0706	24.0	23.4	3	
	0715		23.4	3	
	0730	27.0	27.8	13	
	0748	28.8	28.6		
	0826	30.5	31.6	4	
	0850	34.4	32.8	4	
	0900	35.0	34.6	4	
	0918		35.6	4	
	0930	35.0			
	0945		35.0	3	
	1000	36.0	35.0	3	1 animal on surface :7
	1030	36.2	36.0	3	
	1100	34.6	36.6	3	
	1130	37.0	37.2	3	no animals on surface
	1200	37.0	37.6	4	
	1230	37.0	37.6	4	
	1300	37.0	37.6	4	
	1400	37.0	38.0	4	
	1518	38.0	39.0	3	one animal on surface
	1530	39.0	38.8	3	
	1600	37.2	38.6	3	
	1620	37.0	38.8	3	one animal on surface
	1647	37.0	40.1	7	animal just came out.
	1650	38.0	39.6	3	re-buried
	1652	~~38.0~~	45.2	13	animal pinned down by another under lamp.

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Hlamis.
Date Captured: 6/27/61
Sex: ♂

Animal No.: 2 (replicate)
Recorder No.: 1
S-V length (mm): 60
Weight (gms): 8.7

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/11/61	1654	39.0	40.0	4	re-buried
	1705	38.0	40.0	11	
	1707	39.4	41.0	8	
	1711	39.5	39.0	8	
	1713	39.4	40.2	9	
	1726	39.5	35.2	8	
	1736	39.4	40.0	9	observed 1 animal sitting
	1800	41.0	38.6	8	in H_2O dish.
	1819	40.0	35.0	8	light off.
	1825	38.0	39.0	10	
	1836	36.0	37.4	10	
	2130	27.0	29.0	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 9/17/61
Sex: ♀

Animal No.: 1 (replicate)
Recorder No.: 2
S-V length (mm): 57
Weight (gms): 10.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/11/61	0706	22.8	23.2	7	1 other animal on surface
	0715	22.8	23.4	7	Lights come on 3 min. ago.
	0720	32.0	37.0	9	animal moved in light almost
	0730	33.0	37.2	9	immediately.
	0800	31.0	35.8	7	
	0827	32.0	35.4	7	
	0850		32.0	10	
	0859	38.0	35.0	3	
	0945		33.8	3	
	1000	32.0	34.2	3	1 animal on surface.
	1030	34.0	35.0	3	2 animals on surface.
	1100	35.0	35.8	3	
	1130	35.5	36.4	3	
	1200	36.5	36.6	3	
	1230	36.0	34.4	3	
	1300	36.0	34.4	3	
	1330	35.0	34.4	3	
	1400	35.0	34.4	3	
	1415	35.6	35.0	7	come to surface
	1426	35.2	35.6	3	Returned to sand.
	1500	35.3	35.0	3	
	1530	36.0	35.0	3	
	1600	36.6	35.2	3	
	1620	37.0	35.4	4	
	1650	35.5	35.2	4	

Species: PHRYNOSOMA M'CALLII
Locality Captured: GLAMIS
Date Captured: 4/17/61
Sex: ♀

Animal No.: 1 (replicate)
Recorder No.: 2
S-V length (mm): 57
Weight (gms): 10.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/11/61	1705	35.2	35.2	4	
	1730	36.2	35.2	4	
	1800	35.2	35.2	4	
	1819	35.0	34.6	3	Lights went off.
	1825	34.0	33.8	3	
	1837	33.0	33.2	3	
	2130	26.0	28	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 6/25/61
Sex: ♀

Animal No.: 8 (replicate)
Recorder No.: 3
S-V length (mm): 76
Weight (gms): 23.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/11/61	0706	23.4	23.6	4	3 animals on surface
	0715		23.6	4	lights came on 0712
	0727		30.0	8	
	0800	32.0	37.8	7	
	0828	36.0	40.0	10	
	0849		40.6	9	
	0858	35.5	40.4	9	Very active.
	0920		40.2	10	
	0945		33	3	
	1000	32.0	33.0	3	3 animals on surface
	1030	32.6	33.6	# 3	animals remain submerged
	1100	35.0	34.2	# 3	until 1126 (0945-1126) w/1 (one)
	1130	34.5	34.8	4	animal on surface.
	1200	35.0	35.0	4	
	1230	35.0	35.8	4	
	1300	35.0	36.0	4	
	1330	35.0	36.0	4	
	1400	35.0	36.2	4	
	1430	35.0	36.4	4	
	1500	36.0	36.8	4	
	1530	36.5	36.6	4	
	1600	36.0	36.8	4	
	1621	36.0	36.8	4	3 animals on surface - no movement.
	1640	36.0	36.6	7	copulation attempt by 2 other animals
	1651	36.0	35.2	7	in cage.

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 6/25/61
Sex: ♀

Animal No.: 8 (replicate)
Recorder No.: 3
S-V length (mm): 76
Weight (gms): 23.8

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/11/61	1705		39.2	11	
	1709		38.0	7	4 other animals on surface
	1800	37.5	38.0	3	
	1819		39.6	9	lights off
	1830	47.5	38.2	9	20 min after lights went off
	1838	38.5	39.0	7	animals became active.
	1840	38.5	39.0	4	
	2130	27.0	29.0	4	

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 6/25/61
Sex: ♂

Animal No.: 4
Recorder No.: 1
S-V length (mm): 76
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/12/61	0700	22.5	23.0	3	~~animal will be directly under light when it~~ comes on.
	0712	22.5	23.0	3	Lights came on.
	0730	26.2	26.0	3	
	0800	28.5	28.2	4	3@ 9
	0834	30.4	30.4	3	
	0900	30.5	31.6	4	2@ 7, 1@ 4
	0930	33.0	33.0	4	
	1000	34.0	34.2	4	
	1015	34.0	35.0	4	U.V. given
	1030	35.5	37.2	4	U.V. off
	1100	35.0	36.6	4	
	1200	37.0	37.6	3	No movement for the last hour
	1232	37.4	38.0	3	
	1301	37.5	38.4	3	"
	1331	37.5	38.8	3	
	1400	37.8	39.0	3	"
	1431	38.5	39.2	3	
	1500	39.0	39.6	3	"
	1534	39.2	40.0	3	
	1600	39.0	40.2	4	one animal @ 9
	1630	40.0	40.4	4	
	1700	39.5	41.0	4	

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: 6/25/61
Sex: ♂

Animal No.: 6
Recorder No.: 2
S-V length (mm): 66
Weight (gms): 11.4

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/12/61	0700	22.5	22.8	3	
	0712	22.5	22.8	3	Lights came on - 1 animal out after 3 min
	0730	25.5	25.2	3	
	0803	28.6	27.8	7	2@7
	0834	28.5	31.0	7	
	0900	31.2	33.4	4	2@7
	0926	26.0*	35.6	13-14	*26.0°c was not graphed as a substrate because the animal ran into this area & right out again - 30 sec. duration.
	0930	37.5	39.0	8	
	1000	35.0	36.2	4	
	1030	32.5	36.8	4	U.V. given
	1045	35.5	38.0	4	U.V. off
	1101	35.0	36.6	3	
	1201	34.5	37.0	3	no movement for last hour
	1232	36.5	37.2	3	
	1300	35.2	37.4	3	"
	1331	36.8	37.8	3	
	1400	36.8	37.8	3	"
	1430	36.8	38.2	3	
	1500	36.8	38.2	3	"
	1534	38.2	38.6	3	1 animal on surface
	1600	38.5	38.6	3	1 at 7; 1 @ 9
	1630	40.0	38.8	3	
	1700	38.0	39.0	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: 6/25/61
Sex: ♂

Animal No.: 10
Recorder No.: 3
S-V length (mm): 69
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/12/61	0700	23.0	23.2	4	animal will be directly under light when it goes on.
〃	0713	23.0	23.2	4	lights on 3 animals out after 4 min.
	0720	30.5	36.0	9	5 animals on surface.
	0730	34.0	38.0	4	
	0745	36.6	39.4	4	animal has not moved although temp is fluctuating
	0800	38.0	42.0	4	2@9; 1@7, 1@4, excluding esp animal.
	0835	38.0	41.4	4	
	0900	36.0	37.2	3	2@7; 1@4
	0930	34.5	37.8	3	
	1000	38.2	38.0	3	U.V. on
	1015	41.2	40.2	3	U.V. off
	1032	38.5	39.6	4	
	1101	37.5	38.2	3	
	1202	38.2	37.8	3	no movement for the last hr.
	1233	38.0	38.0	3	It appears that the animal is moving away from the light, while remaining under the sand - reason for statement burrow marks just under sand.
	1300	39.0	38.0	3	
	1330	39.2	38.4	3	
	1400	39.0	38.4	3	
	1430	39.0	39.6	3	
	1501	39.0	38.8	3	No movement for the past hr.
	1534	40.0	39.2	3	2 animals @ 7
	1600	40.0	39.2	3	
	1630	39.0	39.0	3	
	1700	40.0	39.0	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: 7/10/61
Sex: ♀

Animal No.: B-63
Recorder No.: 1
S-V length (mm): 78 -
Weight (gms): 17.7

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/13/61	0710	24.0	23.5	3	
	0730	26.0	25.0	3	
	0800	28.2	27.5	3	
	0830	31.0	30.0	3	
	0900	32.5	32.0	3	
	0930	32.4	33.4	4	
	1000	34.5	34.4	4	
	1030	36.4	35.0	3	
	1100	35.8	31.0	4	
	1200	37.0	31.5	4	changed position
	1230	37.4	37.8	4	
	1300	38.0	38.0	4	
	1330	38.4	38.2	3	
	1400	38.8	38.0	3	
	1430	38.8	38.0	3	
	1500	39.0	39.0	3	
	1530	38.0	39.0	4	
	1600	37.4	39.0	4	

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: 7/11/61
Sex: ♀

Animal No.: B-57
Recorder No.: 2
S-V length (mm): 72.0
Weight (gms): 19.5

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/13/61	0710	24.5	23.5	3	
	0730	39.2	37.5	4 ; 5	
	0800	38.4	42.5	3	moved to new area
	0830	40.8	36.8	3	
	0900	42.6	38.0	3	
	0930	44.0	40.0	3	
	1000	42.4	40.6	4	
	1030	41.8	39.6	3	
	1100	44.8	40.0	3	
	1200	38.6	40.6	3	
	1230	38.6	37.0	3	
	1300	38.6	36.8	3	
	1330	38.6	37.0	3	
	1400	38.6	37.4	3	
	1430	38.6	37.4	3	
	1500	38.2	37.4	3	
	1530	38.6	37.4	3	
	1600	38.6	37.0	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: GILA MTS
Date Captured: 7/11/61
Sex: ♀

Animal No.: B-23
Recorder No.: 3
S-V length (mm): 76.0
Weight (gms): 22.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/13/61	0700	24.5	23.5	3	
	0730	26.5	24.5	3	
	0800	29.2	28.0	3	
	0830	32.0	31.0	3	
	0900	33.6	33.0	3	
	0930	34.6	35.0	3	
	1000	36.2	36.4	3	
	1030	36.2	36.5	3	
	1100	37.0	37.5	3	
	1200	36.5	38.5	3	
	1230	38.0	38.6	3	
	1300	37.8	39.0	3	
	1330	39.8	39.4	3	
	1400	39.0	40.0	3	
	1430	40.6	40.3	3	
	1500	39.4	40.5	3	
	1530	41.0	40.6	3	
	1600	40.2	40.6	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: July 11, 1961
Sex: ♀

Animal No.: B-19
Recorder No.: 1
S-V length (mm): 79
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/14/61	0710	24.2	24.2	7	2@4
	0720	26.5	26.8	7	
	0730	27.0	28.2	7	
	0745	32.4	31.4	13	3@7,9
	0800	34.8	37.6	3	
	0835	38.2	43.6	3	
	0900	34.0	37.4	4	changed position
	0930	33.4	35.8	4	
	1000	35.2	36.8	4	
	1033	36.5	37.6	4	
	1100	36.8	37.6	4	
	1130	37.0	37.8	4	
	1200	38.2	38.4	7	
	1230	38.5	39.2	7	only animal on surface
	1300	38.5	39.4	7	
	1330	38.8	40.0	7	
	1400	38.2	39.2	3	
	1430	38.2	38.6	4	
	1500	39.8	40.0	4	changed position 1@7
	1530	37.4	37.6	4	changed position again 1@7
	1600	38.2	40.2	7	
	1630	40.0	37.8	7	
	1715	40.4	41.2	7	3@9
	1730	38.0	39.6	4,5	3@9
	1745	39.2	39.1	7	4@9 at 1740

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: July 11, 1961
Sex: ♀

Animal No.: B-19
Recorder No.: 1
S-V length (mm): 79
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/14/61	1800	40.2	39.5	8	4 ♂ 9
	1810	40.0	39.8	7	"
	1820	38.5	39.3	7	Lights off at 1820 - 4 other on surface @ 9
	1825	38.6	38.0	3	3@9, 2@7
	1830	38.2	37.6	3	4@9 1@7
	1845	35.8	35.8	3	5@9

Species: PHRYNOSOMA MCALLI
Locality Captured: Glamis
Date Captured: July 10, 1961
Sex: ♂

Animal No.: B-59
Recorder No.: 2
S-V length (mm): 74
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/14/61	0712	28.8	26.6	7	2@7, 1@4
	0720	30.5	34.8	7	
	0730	32.2	38.0	7	
	0745	37.5	40.2	7	1 quite active
	0800	29.2	35.2	7	
	0835	38.2	36.6	3	
	0902	39.2	37.2	3	
	0931	39.2	38.4	3	Same position
	1000	40.2	39.6	4	
	1034	41.2	40.2	4	
	1100	43.0	41.6	4	
	1130	37.0	36.5	3	
	1200	36.0	35.4	3	
	1230	36.6	36.0	3	no animals on surface
	1300	35.8	36.0	3	
	1330	36.8	36.2	3	one on surface
	1400	38.6	36.6	3	
	1430	36.0	36.4	3	
	1500	37.0	36.8	3	1 at 9
	1530	37.2	37.0	3	2 @ 7
	1600	38.0	37.0	3	
	1630	38.8	37.2	3	
	1715	44.4	42.8	9	
	1730	38.0	37.8	4	1 animal (other) active
	1745	41.0	39.0	8	1 animal active

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: July 10, 1961
Sex: ♂

Animal No.: B-59
Recorder No.: 2
S-V length (mm): 74
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/14/61	1800	41.0	41.0	8	1 other animal active
	1810	41.5	44.0	8	panting (mouth open) 3 animals at 7
	1820	37.0	39.8	8	Lights off 1820 3 on surface (active)
	1830	32.6	35.3	7	3 others active
	1845	30.0	32.0	7	1 " "
	1915	—	—		9 animals still active

Species: [redacted]
Locality Captured: 9 mi. W. of Glamis
Date Captured: July 10, 1961
Sex: ♀

Animal No.: B-59-b
Recorder No.: 3
S-V length (mm): 79
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/14/61	0710	24.2	23.6	4	4 animals @ 7
	0720	28.8	24.8	4	
	0730	30.5'	26.4	4	
	0745'	32.2	28.8	4	5 animals very active
	0800	33.8	30.0	4	"
	0835'	37.8	35.2	4	
	0902	39.8	37.6	4	
	0931	41.2	40.0	4	
	1000	38.4	41.0	7	
	1033	39.2	40.0	7	
	1101	39.5'	40.2	7	
	1130	40.0	40.4	7	
	1200	41.0	41.4	7	
	1230	40.0	41.0	7	animals hasn't moved since 1033
	1300	40.5'	41.6	7	
	1330	40.5'	41.6	8	
	1400	41.2	41.6	7	
	1430	41.0	41.0	4	
	1500	40.6	41.2	4	
	1530	40.5'	41.4	4	
	1600	40.8	41.6	4	
	1630	42.0	41.5'	7	
	1715'	34.2	34.6	7	
	1730	33.8	33.8	4	5 other animals active
	1745'	33.8	33.6	4	4 " " on surface (quiet)

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9mi W. of Glamis
Date Captured: July 10, 1961
Sex: ♀

Animal No.: B-59-b
Recorder No.: 3
S-V length (mm): 79
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/14/61	1800	34.0	33.8	4	4 animals on surface (active)
	1810	34.0	33.6	4	" " " "
	1820	33.8	33.6	4	Lights off - 1820 4 animal active
	1830	33.0	33.1	4	4 active
	1845	32.0	32.2	4	4 active

Species: PHRYNOSOMA M'CALLI
Locality Captured: WEST of GLAMIS
Date Captured: 6/25/61
Sex: ♀

Animal No.: 13
Recorder No.: 1
S-V length (mm): 65
Weight (gms): 11.6

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/15/61	0710	22.6	22.6	4	
	0716	23.5	23.2	4	one animal on surface - very slow
	0730	25.0	28.4	9-10	
	0738	28.5	31.0°	11	2 other animals active
	0800	32.0	35.2	10	1 animal active
	0830	34.5	35.0	4	
	0900	33.0	35.2	7	1 other animal active
	0930	38.0	37.6	4	
	0947	33.5	36.2	9-10	Very disturbed by wire
	1000	35.0	36.4	4	
	1030	34.2	35.4	4 3	
	1100	34.8	36.0	3	
	1200	37.0	36.8	3	
	1230	37.0	37.2	3	
	1300	36.5	37.6	3	
	1330	37.0	37.6	3	
	1400	36.2	38.0	3	1 on surface
	1430	37.5	38.4	3	
	1500	37.5 ~~38.2~~	38.2	3	~~1@7~~
	1530	37.5	38.0	3	1@7-9
	1600	37.5	38.2	3	1@8
	1850	—	—	—	10 animals on surface and active

All CAGES

Species: PHRYNOSOMA M'CALLI
Locality Captured: West of Glamis
Date Captured: 6/25/61
Sex: ♂

Animal No.: 6 (replicate)
Recorder No.: 2
S-V length (mm): 66
Weight (gms): 11.4

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/15/61	0710	23.0	23.0	3	
	0716	23.8	23.4	3	1 animal moves into light
	0730	26.0	25.4	3 4	2 animals @ 9
	0800	29.2	28.4	4	1 animal active
	0830	31.2	30.6	4	
	0900	37.0	34.0	7	one other animal active
	0910	35.5	39.2	9	- Entangled with another animal
	0930	34.8	37.6	7	+ struggling.
	1000	33.5	36.6	4	0920 - P. coronatum came out. quite
	1030	35.0	35.4	4 3	active.
	1102	36.0	36.0	3	
	1200	37.0	36.8	3	
	1230	36.2	37.2	3	
	1300	35.0	37.2	3	
	1330	37.8	37.2	3	
	1400	36.5	37.6	3	1 @ 8
	1430	36.2	37.6	3	1 @ 9
	1500	36.5	37.6	4	1 @ 7
	1530	37.0	37.6	4	1 @ 7
	1600	37.0	37.8	4	1 @ 4

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: 6/25/61
Sex: ♂

Animal No.: 10 (replicate)
Recorder No.: 3
S-V length (mm): 69
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/15/61	0730				3 active 5 on surface
	0830	27.0	30.0	7	
	0832	27.5	29.2	7	
	0900	30.8	30.8	4	2 animals active
	0930	32.0	32.0	4	
	1000	32.5	32.8	4	
	1030	33.5	33.5	4	
	1103	34.2	34.4	4	
	1200	36.0	35.6	4	
	1230	36.5	36.2	4	
	1300	35.8	38.0	4	
	1330	36.4	37.2	4	
	1400	34.0	37.8	7	
	1430	38.5	37.6	4	
	1500	38.2	37.6	4	
	1530	36.0	37.2	4	
	1600	36.0	37.2	4	

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: 6/25/61
Sex: ♀

Animal No.: 7
Recorder No.: 1
S-V length (mm): 59
Weight (gms): 13.0

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/19/61	0700	22.8	23.4	3	
	0730	27.8	25.0	4	
	0800	27.8	28.2	3	
	0830	32	31.0	3	
	0900	33.4	33.4	4	
	0930	34.2	35.2	4	No animals on surface of this cage
	1000	36.2	36.2	4	"
	1030	35.5	36.8	4	
	1100	36.4	37.4	4	
	1215	36.0	36.8	3	
	1232	36.8	36.5	3	
	1300	36.9	37.0	3	
	1330	37.0	37.4	3	
	1400	38.0	37.8	3	
	1430	37.5	38.0	3	
	1500	39.2	38.2	3	
	~~1503~~		~~42.0~~	~~0~~	
	1530	38.6	38.2	3	
	1600	38.8	38.6	3	1@8

Species: PHRYNOSOMA M'CALLI
Locality Captured: PALM SPRINGS PANORAMA
Date Captured: 7/17/61
Sex: ♂

Animal No.: B79 (Neck tag #82)
Recorder No.: 2
S-V length (mm): 71
Weight (gms): 14.2

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/19/61	0700	22.8	23.2	9	ran length of cage when thermometer introduced to cage
	0730	32.6	37.6	9	
	0800	34.2	40.0	9	
	0830	31.0	35.4	9	
	0900	48.0	40.6	8	
	0930	33.8	34.8	4	2@7
	1000	36.6	39.8	~~4~~ 3	1@7
	1030	37.8	37.4	4	
	1100	37.2	37.4	3	1@7
	1215	38.2	39.2	3	
	1233	38.2	39.4	3	
	1300	35.4	39.2	7+8	
	1330	40.0	40.0	7	
	1400	36.2	36.2	3	1 at 7
	1430	35.8	37.6	4	another animal directly on top
	1500	38.6	38.8	8-9	
	1504		42.0	8	animal panting mouth open, standing directly under light.
	1505	37.0	41.0	7	ran out of light into center of cage (cooler)
	1530	37.0	40.0	8	
	1600	37.2	39.0	8	1@7

Species: PHRYNOSOMA M'CALLI
Locality Captured: Glamis
Date Captured: June 25, 1961
Sex: ♀

Animal No.: 11
Recorder No.: 3
S-V length (mm): 62
Weight (gms): 19.1

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/19/61	0700	22.8	23.2	7	
	0730	32.6	36.6	4	
	0800	30.8	38.0	3	
	0830	30.4	31.0	4	
	0900	31.4	30.8	4	
	0930	37.2	37.2	4	3 at 7
	1000	31.7	34.2	7	1 @ 7, 1 @ 8
	1030	33.0	37.8	4	
	1100	32.0	32.8	3	1 @ 8
	1215	34.0	34.0	3	
	1234	34.8	34.0	3	
	1300	34.4	33.2	3	sand blown off from very top of head
	1330	35.8	35.0	3	
	1400	36.0	35.2	4	1 at 8
	1430	36.0	35.4	4	
	1500	36.0	35.6	4	
	1530	35.6	36.0	4	
	1600	35.2	35.6	4	2 @ 7

Species: PHRYNOSOMA M'CALLI
Locality Captured: WEST OF GLAMIS
Date Captured: JUNE 25, 1961
Sex: ♂

Animal No.: 5
Recorder No.: 1
S-V length (mm): 70
Weight (gms): 18.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/20/61	0706	22.4	21.8	4	~~No animals at 7~~ none on surface.
	0725	24.8	27.8	7	~~Lights~~ have been on for 10-15 min 2 at 7
	0735	30.4	33.4	9	
	0800	28.0	34.4	9-10	1 other animal active.
	0830	38.2	30.2		
	0900	30.4	33.8	7-8	only animal on surface
	0930	34.8	36.4	8	
	1000	34.4	35.8	9	only animal on surface
	1045	34.6	35.6	3	
	1100	35.2	34.2	3	
	1200	36.4		3	
	1300	32.4		3	
	1345	32.8		3	
	1400	32.8		3	
	1430	38.4		3	
	1500	38.4	38.5	3	No animals on surface
	1530	39.0		3 ÷ 4	got out of sand as thermometer put down
	1600	39.2		9	
	1630	42.0	37.8	9	This animal only on surface
	1730				Broke thermocouple between 1630 & 1700. Only animal on surface at 1700.

Species: PHRYNOSOMA M'CALLI
Locality Captured: W. of GLAMIS
Date Captured: JUNE 25-61
Sex: ♀

Animal No.: 3
Recorder No.: 3
S-V length (mm): 78
Weight (gms): 16.2

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/20/61	0706	22.8 ~~23.8~~	22.8	#7	2 other animals at 7
	0726	27.8	32.8	7	3 others at 7 & 8
	0736	35.0	35.0	4	in sand directly under light
	0800	35.6	37.4	4	" 2 other animals very active
	0830	36.0	36.4	3	
	0900	36.5	37.0	3	2 animals at 7
	0930	37.0	38.4	4	
	1000	38.0	40.4	7-9	only animal on surface.
	1045	39.0	40.6	7	
	1100	33.0	35.4	7	
	1200	32.0		4	
	1300	36.4		8	only animal on surface
	1345	35.8		3	
	1400	35.4		3	
	1430	36.4		3	
	1500	37.2	36.4	3	No animals on surface
	1530	36.2		3	
	1600	36.8		3	
	1630	37.2	36.7	4	3 animals on surface
	1700	37.4	36.8	4	3 " " "
	1730	37.4	37.4	4	4 " " "
	1930	29.0	30.0	3	1 animal on surface

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 6/25/61
Sex: ♂

Animal No.: 12
Recorder No.: 1
S-V length (mm): 67
Weight (gms): 11.2

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/21/61	0700	21.2	22.2	3	
	0730	24.8	24.8	3 4	
	0800	28.6	30.4	7	
	0830	31.0	34.4	7	
	0900	37.0	37.2	7	
	0910	37.0	37.0	13	
	0930	34.0	36.0	4	2 animals on surface
	1000	32.0	36.0	7	
	1009		36.0	13	
	1034	33.4	37.0	7	
	1100	34.5	35.4	8	only animal on surface
	1200	35.8	36.2	3	
	1230	35.8	35.8	3	
	1300	35.8	36.0	3	
	1330	37.0	37.2	3	none on surface
	1430	37.0	37.2	3	
	1500	37.0	37.2	3	
	1530	37.0	37.2	3	
	1600	37.0	37.8	3	one animal active.
	1630	38.0	39.0	13-7-10	UNDER Lights 57° C
					Cool END of cage = 38° C
					1610 2 ANIMALS QUITE ACTIVE
					2 ANIMAL COURTING (fighting)
					1630

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 6/25/61
Sex: 1 ♀

Animal No.: 0
Recorder No.: 2
S-V length (mm): 70
Weight (gms): 16.6

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/21/61	0700 ~~0800~~	21.6	22.2	4	
	0730	33.8	40.6	9	
	0800	38.8	37.0	8	
	0840	34.0	38.6	8	
	0856				thermo couple broken
	0930	28.0	28.4	7	" " repaired 1 animal on surface
	1000	34.2	36.0	7	
	1035	34.2	34.6	9	
	1100	37.2	37.6	7	only animal on surface
	1200	35.2	35.8	3	
	1230	36.0	36.0	3	
	1300	36.2	36.2	3	
	1390				thermal couple broke again.
					1600 2 animals active
					UNDERLIGHT TEMP. 54°C Beyond Schultheis
					COOL END. 31°C
					1630 Same 2 still active

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured: 6/25/61
Sex: ♀

Animal No.: 9
Recorder No.: 3
S-V length (mm): 69
Weight (gms): 18

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/21/61	0700	22.0	22.4	4	
	0730	23.8	23.4	7	
	0800	41.0	36.4	7	
	0840	40.5	38.6	8	
	0900	34.8	36.0	7	
	0930	32.0	34.0	7-9	only animal on surface
	1000	30.0	35.2	7	
	1045	30.5	33.4	7	
	1100	31.0	36.6	7	only animal on surface
	1200	41.5	37.8	8	
	1230	~~35.8~~ 33.8	35.0	7	
	1300	35.0	36.0	7	
	1330	35.5	36.4	7	only animal on surface
	1430	37.6	36.4	7	
	1500	37.0	36.0	7	
	1530	32.8	37.4	7	1545 2 animals active
	1600	34.0	36.4	7	2 ANIMALS ACTIVE
	1630	34.2	39.0	9	POOL END 33.4 ♀
					HOT END 68.5 °C

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9mi W. of Glamis
Date Captured: 7/22/61
Sex: ♀

Animal No.: 1
Recorder No.: 1
S-V length (mm): 78
Weight (gms): 19.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/24/61	0715	23.4	23.0	4	
	0730	25.0	25.2	4	one "tiny" animal on surface
	0800	28.2	28.8	4	
	0830	30.6	30.4	4	one animal at 4+5
	0900	31.0	32.0	4	
	0935	32.2	34.0	4	
	1005	34.0	35.0	4	
	1030	35.0	36.2	4	
	1100	35.0	36.8	4	
	1130	36.4	37.7	4	1 other head exposed
	1200	37.0	37.6	8	1 " animal on surface
	1230	35.2	37.6	7	1 " " " "
	1300	36.0	37.8	7	" " " " "
	1330	37.8	39.6	7	" " " " " (NEW Positions)
	1400	38.0	40.4	7	"
	1430	37.2	38.0	7	" " "
	1510	37.8	37.8	7	" " " " "
	1530	37.2	38.0	7	" " " " "
	1600	38.4	38.2	7	one " " " "

Species: PHRYNOSOMA M'CALLI
Locality Captured: 10 mi WEST of GIANTS
Date Captured: 7/27/61
Sex: ♂

Animal No.: 2
Recorder No.: 2
S-V length (mm): 73
Weight (gms): 14.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/24/61	0715	25.2	29.6	4	
	0730	36.5	38.8	4	one tiny animal on surface
	0800	39.0	40.0	7	animal sitting crouched as if ready
	0830	34.0	39.0	7	to spring, mouth open, directly
	0900	33.4	38.4	7	under light. Temp. taken by
	0935	37.4	40.0	7	schulthize = 45.8°C — Data up to
	1010 ~~1040~~	39.0	42.6	7	0800 invalid due to the thermocouple
	1030	41.0	42.8	7	was not in the cloaca.
	1100	38.2	42.0	7	
	1130	41.2	39.9	8	no other animals exposed.
	1200	52.0	43.6	8	" " " "
	1230	38.0	40.2	7	" " " "
	1300	38.2	40.0	7	" " " "
	1330	38.8	39.8	7	" " " "
	1400	38.4	40.2	7	" " "
	1440	39.4	38.0	7	one head exposed
	1510	38.2	41.0	8	one "small" at 8 — one other at 7
	1530	39.8	40.6	8	Not a full 8 ← three animals
	1600	36.0	39.0	3	including the tiny one is in this position

Species: PHRYNOSOMA M'CALLI
Locality Captured: 10 mi W. of Gilmis
Date Captured: 7/23/61
Sex: ♂

Animal No.: 2 (replicate)
Recorder No.: 2
S-V length (mm): 73
Weight (gms): 14.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/25/61	0700	21.2	21.6	4	one other at 4
	0730	35.4	35.4	4	"tiny boy out"
	0800	34.0	41.6	7	0800 Experimental animal on surface
	0830	34.0	36.0	7	mouth open & panting - 0830 ~~one at~~
	0900	34.2	36.6	4	2 at 7 also tiny one at 7
	0930	39.0	38.0	8	one other at 7 - one lead slowing
	1000	34.2	34.4	3	~~6~~ tiny one at 8, one at 7, one at 4
	1030	34.0	34.0	3	~~one~~ 2 at 4
	1100	34.2	34.0	4	one at 7
	1130	35.8	34.4	3	one at 7, one at 4
	1200	35.8	35.0	3	one at 4
	1300	36.0	35.0	3	" " "
	1330	38.0	35.6	3	" " "
	1400	38.0	35.6	3	
	1445	37.0	36.5	4	~~no others exposed~~ 1 other at 4
	1515	37.2	37.6	8	one other at 4
	1530	38.0	39.0	8	
	1600	39.2	38.2	8	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9mi W. of Glamis
Date Captured: 7/23/61
Sex: ♂

Animal No.: 7
Recorder No.: 3
S-V length (mm): 72
Weight (gms): 15.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/24/61	0715	25.4	28.4	4	animal came to surface when
	0730	24.2	28.6		thermometer was approaching.
					one other animal on surface (0715)
	0800	25.4	30.0		
	0830	38.0	37.0	7	
	0900	33.2	36.6	7	
	1000 0930	34.8	38.6	7	one other animal on surface
	1010	35.2	38.0	7	
	1030	33.6	39.0	4	
	1100	34.2	34.0	4	
	1130	36.0	37.3	4	2 other heads exposed.
	1200	36.2	36.9	4	1 other head exposed, 1 animal on surface
	1230	35.4	36.8	4	Head just barely out of sand
	1300	36.0	36.4	4	" " " "
	1330	35.7	36.6	4	Head well out of sand now.
	1400	33.0	32.6	4.	NEW POSITION - Cool END.
	1445	36.0	37.0	4	1420 thermo couple pulled out of
	1510	36.2	37.2	4	cloaca
	1530	37.4	37.4	4	one other animal at 4.
	1600	36	36.8	3	" " " on surface

TAG # 97

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9mi W. of GLAMIS
Date Captured: 7/22/61
Sex: ♂

Animal No.: 3
Recorder No.: 3
S-V length (mm): 68
Weight (gms): 14.5

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/25/61	0700	21.6	21.6 (S)	7	# 3 couple broken
	0730	24.0	30.6	7	
	0800	24.2	30.0	9	ANIMAL QUITE ACTIVE
	0830	29.8	39.0	9	tiny one out on surface - one other
	0900	32.2	33.8	4	adult on surface. - 3 adults on surface
	0930	35.0	37.4	4	of outdoor cages 0835 (FEEDING)
	1000	34.2	35.0	4	only animal showing
	1030	33.4	35.4	4	one animal at 7
	1100	35.2	35.8	4	
	1130	34.4	36.3	3	none exposed
	1200	36.0	36.8	3	" "
	1300	37.4	37.6	4	
	1330	37.4	38.0	3	
	1400	38.0	38.2	3	
	1445	38.0	38.8	3	one other at 4
	1515	38.6	38.8	3	"
	1530	39.0	39.0	3	"
	1600	39.0	39.0	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9 mi W. of Gila Mts
Date Captured: 7/23/61
Sex: ♂

Animal No.: 4
Recorder No.: 1
S-V length (mm): 76
Weight (gms): 16.1

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/25/61	0700	22.0	21.8	4	one other head showing
	0730	25.0	26.2	4	
	0800	26.8	28.4	4	
	0830	29.2	30.2	4	one animal at 7
	0900	37.0	36.8	7	one other at 7
	0930	34.2	35.8	4	one animal at 7
	1000	33.2	33.4	7	one other " " "
	1030	33.0	35.4	7	" " " " "
	1100	36.6	37.0	7	one at 4
	1130	37.0	37.0	5	none exposed
	1200	37.5	37.5	4, 5	one at 4
	1300	37.0	38.4	4	
	1330	37.6	37.8	4	
	1400	39.0	39.0	4	
	1445	39.4	39.8	4, 5	no other exposed
	1515	37.8	39.0	7	
	1530	39.4	39.6	7	
	1600	37.4 ~~39.2~~	38.2	87	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9mi W. of GLAMIS
Date Captured: 7/23/61
Sex: ♀

Animal No.: ♀ 5
Recorder No.: 2.
S-V length (mm): 68
Weight (gms): 16.5

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/26/61	0700	21.8	22.0	4	0725 the head of one other adult and
	0730	30.0	27.8	3	the head of a "tiny one" was visible.
	0800	33.2	32.0	7	"tiny one" out
	0845	36.8	39.2	4	
	0900	30.2	37.2	7	tiny one still out
	0930	36.8	35.4	7	tiny one under
	1000	29.8	31.6	(4-5)	one at 4
	1030	39.8	37.6	7	
	1100	33.0	35.0	7	one other at 7
	1130	34.8	35.0	7	" " " "
	1200	34.4	33.0	7	" " " "
	1230	34.8	35.2	7	
	1300	34.0	35.0	7	
	1330 ~~1390~~	34.2	35.2	7	
	1400	37.0	37.2	7	at 1408 exp. animal ate 13 animals (meal worms)
	1430	36.0	36.8	8	
	1500	34.0	34.8	7	
	1530	35.8	36.2	7	only animal on surface
	1600	49.0	38.0	8	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 7 mi W. of Glamis
Date Captured: 7/23/61
Sex: ♂

Animal No.: 6
Recorder No.: 3
S-V length (mm): 69
Weight (gms): 14.6

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/26/61	0700	21.8	22.0	3	no animal on surface
	0730	30.0	26.2	3	
	0800	30.8	23.8	4	the little one is on the surface.
	0850	34.0	33.4	7	
	0900	35.0	38.6	9	
	0930	35.8	38.2	7	
	1000	36.0	38.0	7	
	1030	37.0	38.6	7	
	1100	36.2	37.8	3	
	1130	35.2	37.1	5	1 other at 3
	1200	36.8	37.3	5	1 " " 3
	1230	38.4	37.6	5	
	1300	38.8	37.8	5	
	1330	39.0	38.2	5	
	1400	40.0	38.6	5	
	1430	40.2	39.0	5	
	1500	41.0	39.0	5	
	1530	40.5	39.2	5	no animal on surface
	1600	40.0	39.4	5	

TAG ~~109~~ 107

Species: PHRYNOSOMA M'CALLI
Locality Captured: 9mi W. of Glamis
Date Captured: 7/23/61
Sex: ♀

Animal No.: ~~5~~ 9
Recorder No.: 1
S-V length (mm): 60
Weight (gms): 10.0

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/26/61	0700	22.0	21.8	4	one other at 4
	0730	25.0	24.6	~~3~~ 4	" " " "
	0800	26.0	26.6	4	the little one is out, at 7 under light
	0830	30.2	30.8	4	one at 7
	0900	31.2	33.0	7	
	0930	33.4	34.6	7	
	1000	32.4	37.4	7	
	1030	34.0	35.0	4	
	1100	35.2	36.4	4-5	
	1130		[redacted]	[redacted]	1 other 4-5 thermocouple out of animal.
	1200	36.0	37.0	4	Replaced at 1155
	1230	36.4	37.4	~~3~~ 4	
	1300	37.2	~~37.0~~ 37.8	4	
	1330	38.0	38.4	4	
	1400	38.0	38.8	4	~~at 1408 Exp. animal ate 12 meal worms~~
	1430	39.0	39.2	4	
	1500	37.8	38.0	9	
	1530	37.5	38.6	4-5	no animals on surface
	1600	38.4	39.0	7	tiny one on surface

Species: PHRYNOSOMA M'CALLI
Locality Captured: 10mi W. of Glamis
Date Captured: 7/23/61
Sex: ♀

Animal No.: 8
Recorder No.: 2
S-V length (mm): 72
Weight (gms): 18.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/27/61	0730	24.5	23.5	4	Little one on surface (7)
	0800	27.0	25.3	4	" " buried (3)
	0830	27.4	26.4	4	" " at 4
	0900	40.0	38.7	7	" " on surface (7)
	0930	40.2	40.8	9	" " at 3
	1000	30.0	36.8	8	" " " 3
	1030	40.0	43.5	8	" " " 3
	1100	32.0	37.5	8	" " " 3
	1130	38.2	37.3	3	" " " 3
	1200	37.4	37.4	4	" " " 3
	1230	39.0	38.0	4	" " " 5
	1300	38.8	38.5	4	" " " 3
	1330	38.5	38.8	4	" " " 3
	1430	35.2	34.8	3	" " " 3
	1515	35.5	34.4	3	" " " 3
	1530	35.2	34.5	3	" " " 3
	1600	35.0	34.6	3	" " " 4
	1630	35.6	34.7	3	" " " 3
	1740	—	—	—	" " " 8

Species: PHRYNOSOMA M'CALLI
Locality Captured: 10 mi W. of Glamis
Date Captured: 7/21/61
Sex: ♀

Animal No.: 3
Recorder No.: 3
S-V length (mm): 35
Weight (gms): 2.5

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/28/61	0743	28.0	31.6	7	
	0900	29.6	34.0	7	
	0830	34.2	42.0	9	
	0906	36.8	38.0	4	
	0930	36.2	36.8	3	
	1000	36.8	37.6	3	
	1030	38.5	39.0	4	
	1100	39.0	39.4	4	
	1130	39.4	39.0	5	
	1200	39.8	40.4	3	
	1230	40.0	40.4	3	
	1310	40.2	40.9	3	
	1330	40.2	40.9	3	
	1420	41.0	41.4	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 7 mi W. of Glamis
Date Captured: 7/22/61
Sex: ♀

Animal No.: 4
Recorder No.: 2
S-V length (mm): 35
Weight (gms): 2.0

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/28/61	0741	33.2	42.2	7	
	0800	31.2	38.4	7	
	0830	38.2	41.6	8	
	0900	32.8 ~~38.6~~	39.6	7	
	0930	33.4	36.6	7-8	
	1000	32.8	34.4	4	
	1030	33.0	35.2	4	
	1100	41.0	42.0	7	
	1130	39.0	39.6	4	
	1200	36.5	36.8	3	
	1230	36.0	36.8	3	
	1310	37.0	37.4	3	
	1330	37.2	37.4	3	
	1420	37.5	37.7	3	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 8mi W. of Glamis
Date Captured: 7/22/61
Sex: ♂

Animal No.: 5
Recorder No.: 1
S-V length (mm): 35
Weight (gms): 1.9

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/28/61	0740	27.0	29.4	3	
	0800	28.2	30.2	7	
	0830	29.2	32.6	7	
	0905	34.0	33.0	7-9?	
	0930	32.8	36.0	7	
	1000	32.8	35.4	7	
	1030	33.8	35.8	4	
	1100	34.2	35.6	4-5	
	1130	35.2	36.2	4-5	
	1200	36.2	36.8	4-5	
	1230	36.8	37.0	4-5	
	1310	37.0	37.6	4-5	
	1330	37.2	37.6	4-5	
	1420	37.5	38.2	4-5	

Species: PHRYNOSOMA M'CALLI
Locality Captured: 10 mi W. GLAMIS
Date Captured: 7/22/61
Sex: ♂

Animal No.: 10
Recorder No.: 1
S-V length (mm): 72
Weight (gms): 14.3

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/27/61	0730	24.5	24.0	[redacted]4	Little one on surface (7)
	0800	32.2	30.7	7	" " " " (7)
	0830	29.2	30.7	8	" " buried (3)
	0900	31.4	32.9	8	" " on surface (7)
	0930	33.0	34.1	8	" " at 4
	1000	33.8	35.0	7	" " " 7
	1030	37.0	36.9	4	" " " 7
	1100	35.2	35.9	4	" " " 7
	1130	40.0	38.3	4	" " " 4
	1200	37.6	37.3	4	" " " 7
	1230	37.8	37.6	4	" " " 7
	1300	38.2	38.0	4	" " " 7
	1330	39.2	38.3	4	" " " 3
	1430	39.0	39.0	4	" " " 3
	1515	39.0	39.4	4	" " " 3
	1530	39.2	39.6	4	" " " 3
	1600	39.4	39.8	4	" " " 4
	1630	39.8	40.0	4	" " " 3
	1740	—	—	—	" " " [redacted]4

Species: PHRYNOSOMA M'CALLI
Locality Captured: 10 mi w. of Glamis
Date Captured: 7/22/61
Sex: ♂

Animal No.: 11
Recorder No.: 3
S-V length (mm): 75
Weight (gms): 18.0

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/27/61	0730	26.0	30.1	4	Little one on surface (7)
	0800	34.2	39.2	7	" " at [redacted]4
	0830	35.6	37.9	8	" " " [redacted]4
	0900	35.4	38.0	7	" " on surface (7)
	0930	39.0	39.1	4	" " at 3
	1000	29.4	32.0	8	" " " 3
	1030	41.0	40.5	3	" " " 3
	1100	39.8	39.2	5	" " " 3
	1130	40.0	39.7	4	" " " 3
	1200	41.8	41.4	7	" " " 3
	1230	40.0	39.4	3	" " " 3
	1300	40.0	39.5	3	" " " 3
	1330	40.6	39.7	3	" " " 3
	1430	40.8	40.2	3	" " " 3
	1515	42.8	40.5	4	" " " 3
	1530	34.4	35.5	3	" " " 3
	1600	33.0	32.8	8	" " " 3
	1630	—	—	9	Thermocouple acting up — no record at 1630. (T.C. out of cloaca)
	1740	—	—	—	Little one at 8.

Species: PHRYNOSOMA CORONATUM
Locality Captured: 1 mi. E. of Wrightwood
Date Captured: 12 Mar. 1961
Sex: ♂

Animal No.: 1
Recorder No.: 2
S-V length (mm): 71
Weight (gms): 23.5

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/20/61	0706	23.8	23.0	3	one m'calli at - 8-10, 2 at 7
	0725	27.2	23.6	3	3 animals on surface (active)
	0735	28.8	23.8	3	
	0800	31.8	28.2	7	2 animals very active
	0830	30.4	37.0	8	
	0900	35.2	36.0	3	
	0930	30.8	35.4	7	
	1000	33.0	37.0	7	only animal on surface
	1045	36.2	35.4	3	
	1100	37.2	35.2	3	
	1200	36.8		3	
	1300	37.4		3	
	1345	42.2		3	
	1400	41.8		3	
	1430	42.0		3	
	1500	42.8	37.4	3	1 animal on surface
	1530	41.8		4+++	
	1600	38.0		8	
	1630	35.2	35.2	8	This + 1 animal on surface
	1700	38.0	35.0	8	" " 1 " " "
	1730	36.0	35.3	8	" " 1 " " "
	1930	30.4	32.0	8	" is the animal on surface

Courting procedures. Phrynosoma m'calli

at the beginning of the courtship, the courting animal approaches the receptive animal (♀) and proceeds with a series of bobbing movements. The bobbing movements of the P. m'calli are of two types; 1) The animal is raised well off the surface of the sand by a severe "bowing" of all four legs. The bobbing is done with flexures at the "elbow" joints; 2) The animals holds the head ~~quite high~~ and the ~~pelvic~~ pectoral girdle high off the surface ~~and~~ while the posterior portion of the body remains on the surface. In the courting "bobs" they are more often of the first type - with the underside of the body showing. These are the introductory ~~type of~~ bobs. ~~Bobs~~. There is one more type of "bob" which is used only after the preliminary bobs have been executed. ~~and~~ This is definitely a courtship procedure. This bob is usually done first by the animal that is being approached, the ♀. The animal ~~is hugging~~ hugs close to the surface and is "walking in place", using lateral, swimming strokes but not moving at a walking pace. While ~~this~~ "walking in place" there are violent quick jerky movements of the head and body. During the action the courter will repeat the same type of "bob", usually staying behind and slightly to one side of the animal being courted.

laboratory OBSERVATIONS of P. m'calli.

7/22/61 1630 - 1735

7/22/61 0710 - 850

Species: PHRYNOSOMA M'CALLI
Locality Captured: GLAMIS
Date Captured:
Sex:

Animal No.: 411
Recorder No.:
S-V length (mm):
Weight (gms):

SPECIAL CHART for Activity comparison from 1630 7/21/61 & 7/22/61
This ~~now~~ covers all CAGES & all Activity

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
7/21/61	1630				
	1650				2 animals in ~~all~~ cages[1] quite active
					2 animals in cage 2 sitting quietly
					midway in the cage and they are
					sitting very close together.
					active movement in cage #2
					(1705) one animal pacing the
					glass.
					1715 - "Gordo" now quite active.
					In cage (RECORDER) (~~Reader~~ 3) there is one
					animal on surface + one animal
					half in and half out of sand.
					1720 one more animal in cage 1*
					on surface.
					1725 = 3 animals active in cage 1
					" = 2 " " " 2
					" = 1 " sitting on surface cage 2
					" 1 animal active in cage 3
					animals are tending to be active
					~~and will be~~ in the middle or
					mid warmth range of the cages
					no extremes either way.

* cage will indicate recorder #

Species: PHRYNOSOMA M'CALLI
Locality Captured:
Date Captured:
Sex:

Animal No.:
Recorder No.:
S-V length (mm):
Weight (gms):

Date	Time	Substrate Temp. (°C.)	Cloacal Temp. (°C.)	Animal Condition	Remarks
					at 1730 I manually shut the lights off.
				1735	animals have tended toward speeded up activity. there is a movement of animals into the warmer areas but when they starts to lug the surface the quickly stand up on their toes again. a general increase in movement.
					7/22/61 0710 animals were under surface all but 2. The sand is at 22.4°C and the room air temp. is 24.2°C
					0715 all the lights are on & the animals are coming out
					3@7 in cage 1 - 1 at 4
					2@7 in cage 2
					3@7 in cage 3

7/22/61 7/22/61

0720 the same 8 animals are still out, but there is no activity. 0722 cage # 1 (Decoder 1) 3 at 7 1 at 4 (just went to 7) 3 of the animals are sitting in the lights. They are probing around in search for food.

Slight activity in cage # 2. 1 animal scratching at glass 1 at 7 at edge of light, 1 at 7 out of light. In cage 3 there are 3 animals on surface 2 in the light 1 on edge of light

I will feed at 0730 — normal feeding activity.

Cage # 1 4 animals at 11 + 7

" # 2 3 at 7 1 at 8 = 11 animals

" # 3 3 at 7

0725 increased activity in all cages. still 11 animals on surface

0747 1 animal in cage # 1 very active - climing at the glass

" 2 " " " 2 " " " " " "

0800 CAGE 1 = slight activity 3 at 7 (QUIET) 1 at 4

" 2 = 1 QUITE ACTIVE 2 at 7 QUIET = 8 ANIMALS

3 = " " " 2 at 7

0810 CAGE # 1 = 2 at 7 (QUIET) 2 at 4 (under light)

" " # 2 = 3 + "GORDO" at 7 (QUIET) 1 at 4 (mid line of cage)

3 = 3 at 7 QUIET

0835 decreased activity 2 on surface of Cage # 1

2 on surface of cage # 2 1 QUITE ACTIVE

2 " " " " # 3

0850 animals in cage 2 (3 on surface) all very active.

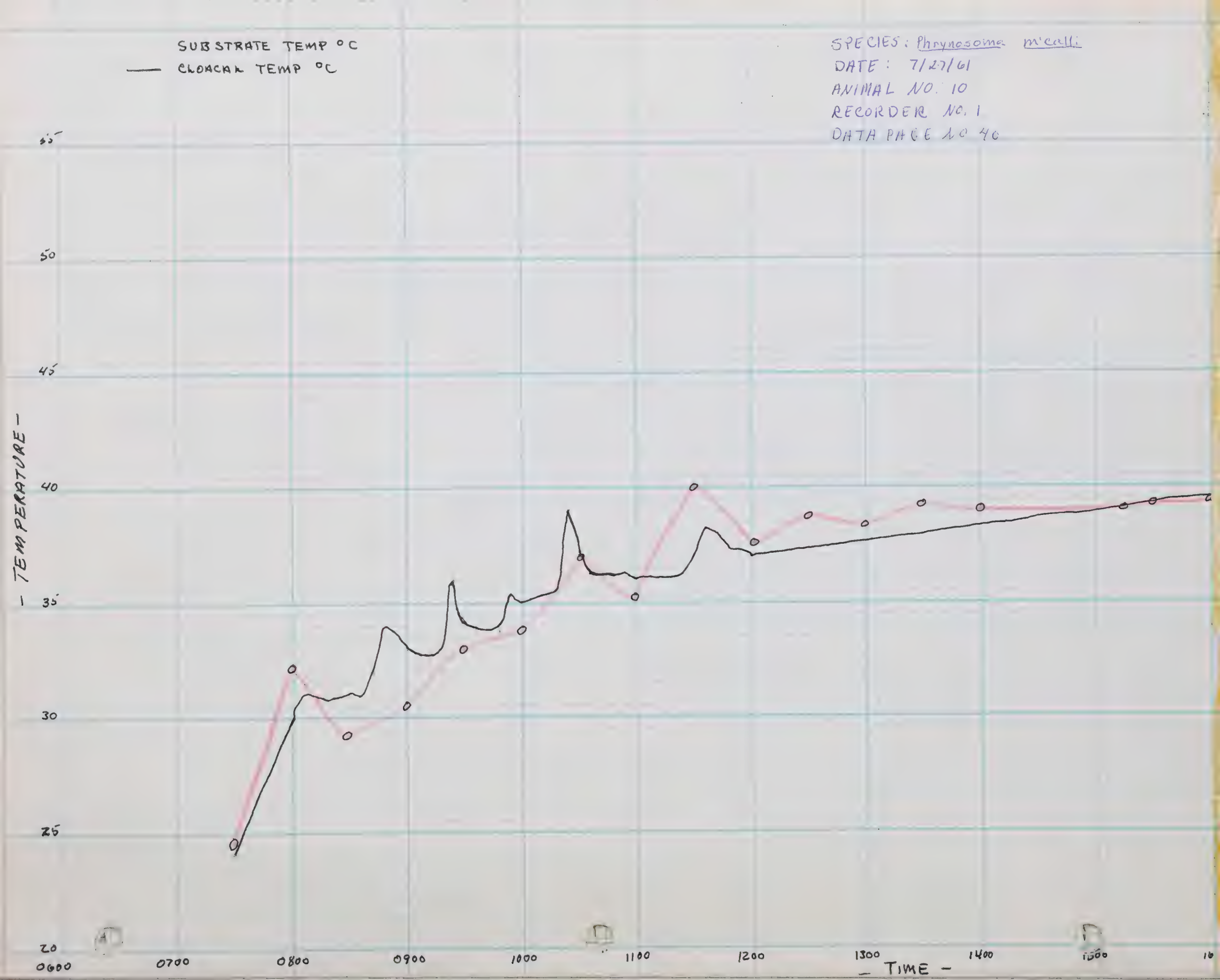
0850 " " " 1 (1 on surface) " " QUIET

" " " 3 none on surface (1 at 4)

SUBSTRATE TEMP °C

—— CLOACAL TEMP °C

SPECIES: Phrynosoma m'calli
DATE: 7/27/61
ANIMAL NO. 10
RECORDER NO. 1
DATA PAGE NO 40



SUBSTRATE TEMP °C
CLOACAL TEMP °C

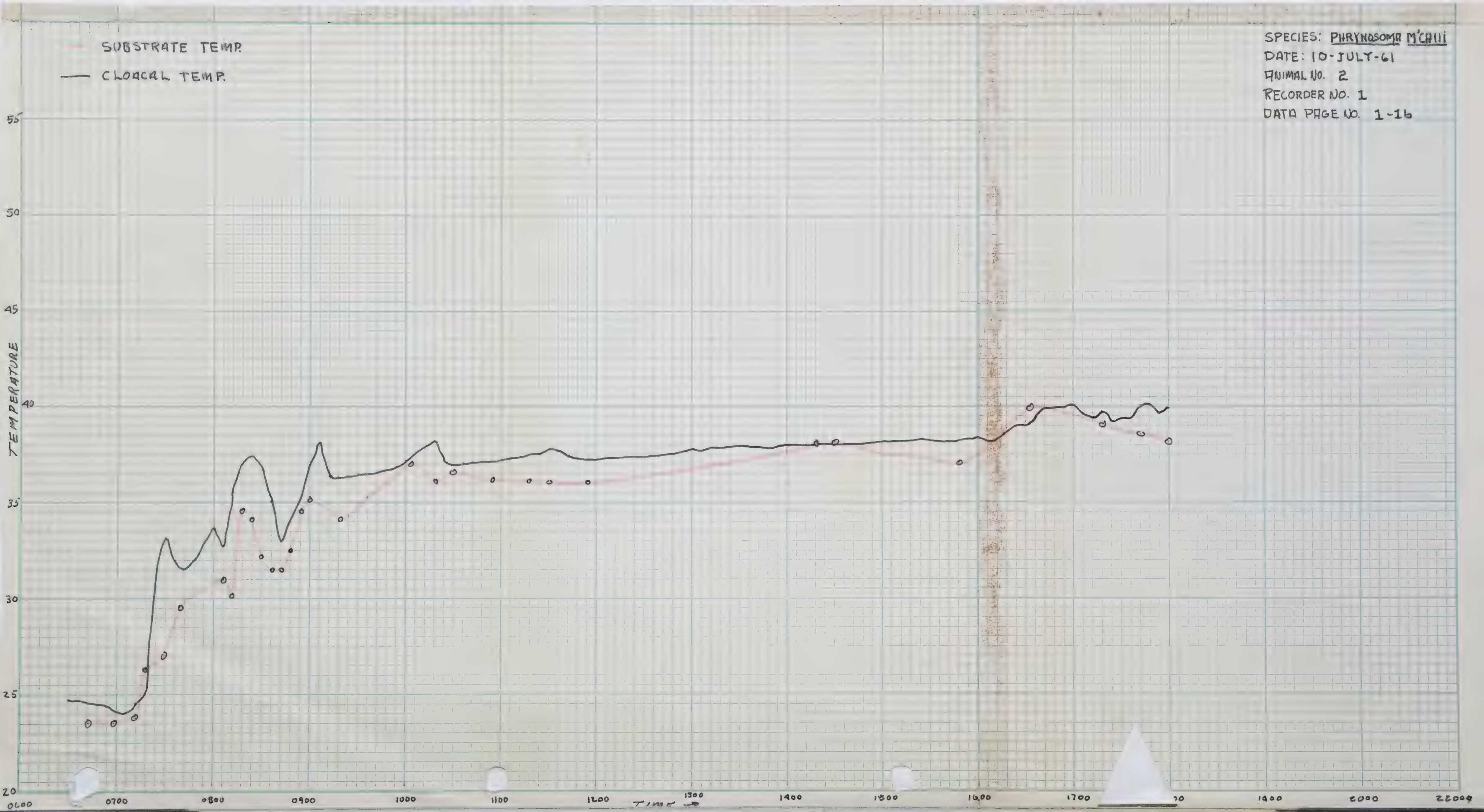
Phrynosoma m'ee-lli
July 27, 1961
Animal No. 11
Recorder No. 3
Data Page No. 41

- TEMPERATURE -

55
50
45
40
35
30
25
20

0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 00

- TIME -


SUBSTRATE TEMP.
CLOACAL TEMP.
SPECIES: PHRYNOSOMA M'CALLII
DATE: 10-JULY-61
ANIMAL NO. 2
RECORDER NO. 1
DATA PAGE NO. 1-16
TEMPERATURE
55
50
45
40
35
30
25
20
0600
0700
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0900
1000
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1200
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1600
1700
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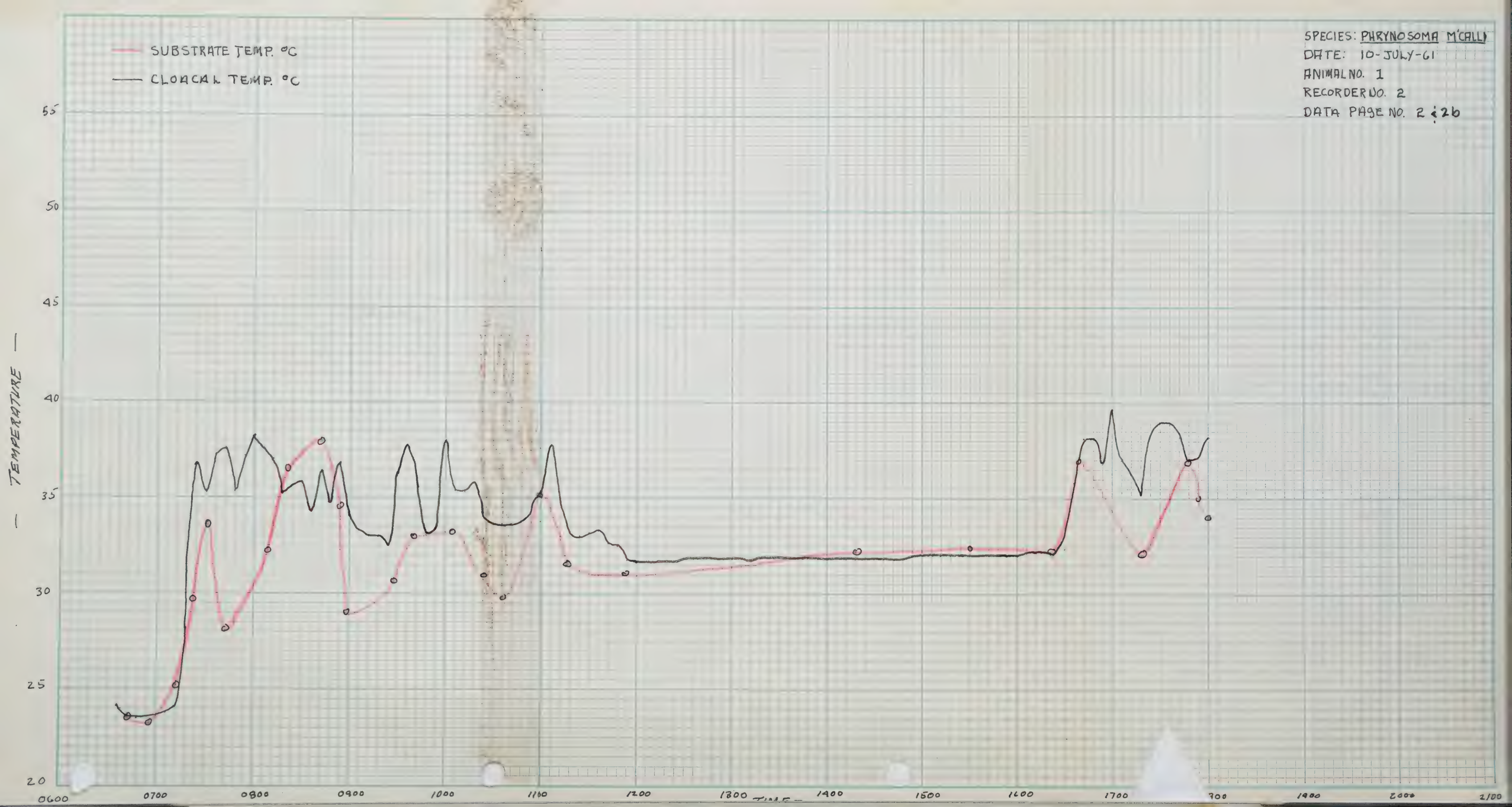
1900
2000
2200
TIME


SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 10-JULY-61
ANIMAL NO. 1
RECORDER NO. 2
DATA PAGE NO. 2 & 2b
— TEMPERATURE —
55
50
45
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0600
0700
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1300
— TIME —
1400
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1700
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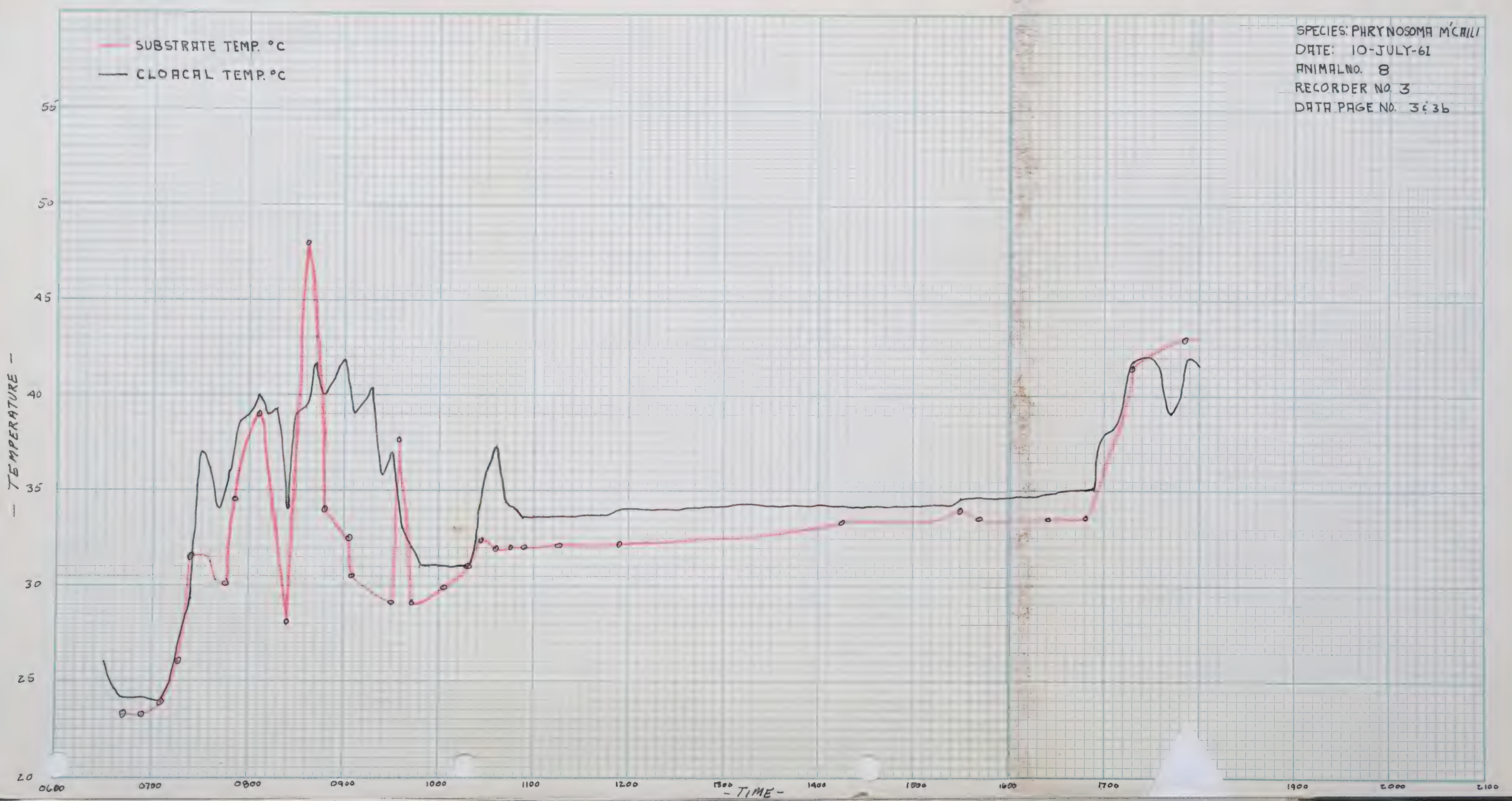
2100


SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 10-JULY-61
ANIMAL NO. 8
RECORDER NO. 3
DATA PAGE NO. 3 & 3b
55
50
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35
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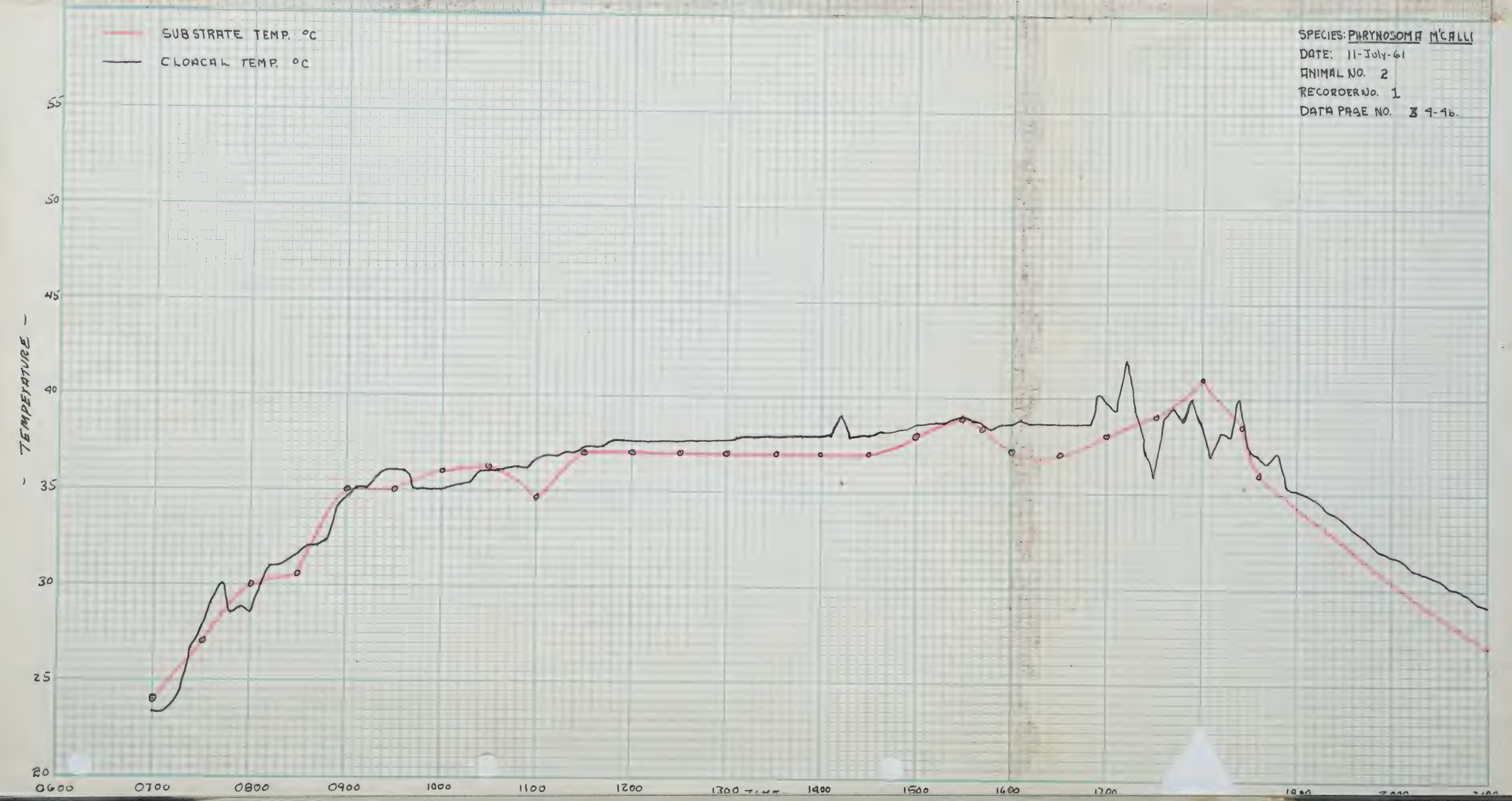
25
20
— TEMPERATURE —
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1900
2000
2100
— TIME —


SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 11-July-61
ANIMAL NO. 2
RECORDER No. 1
DATA PAGE NO. B 9-46.
TEMPERATURE
55
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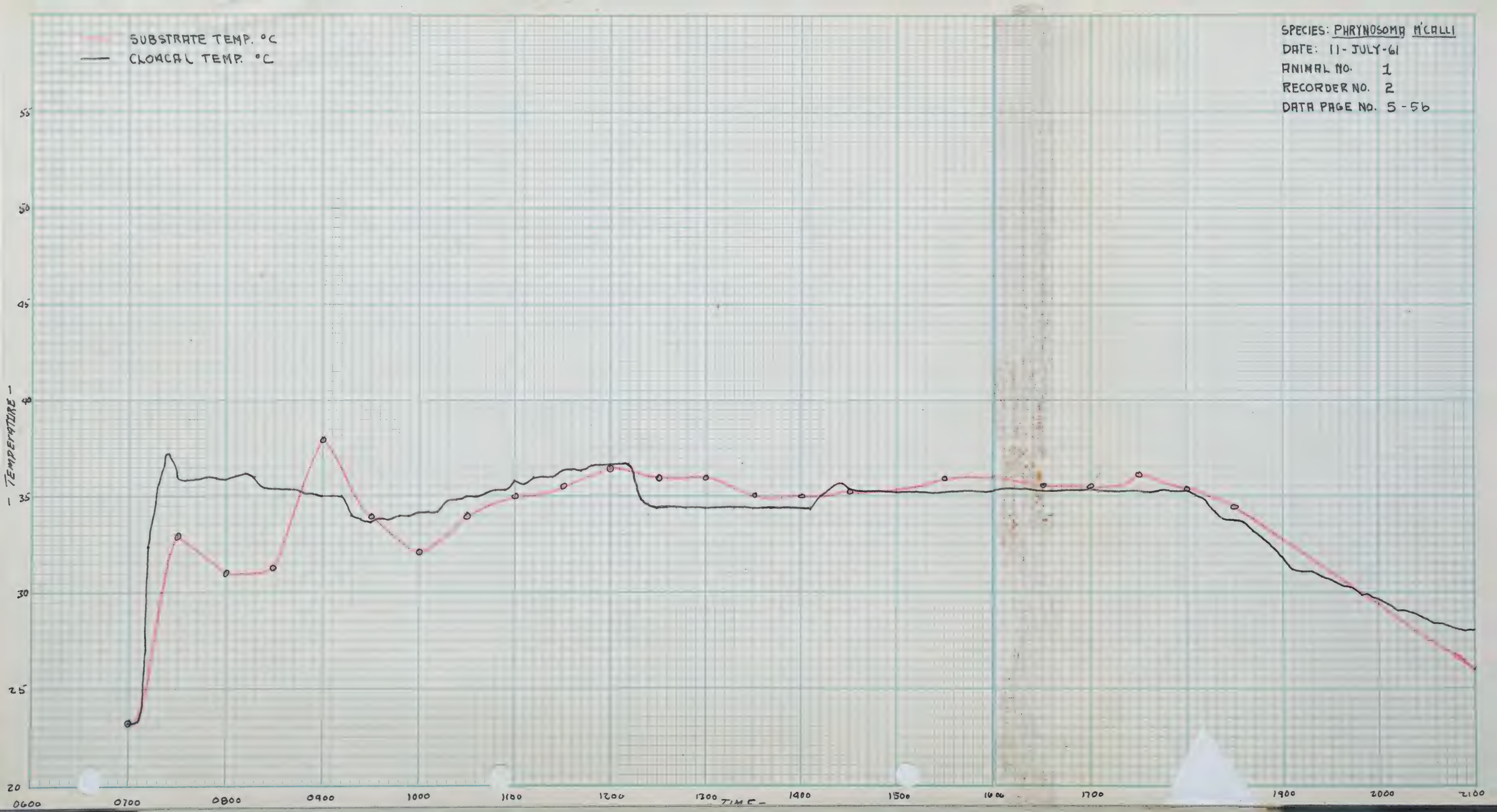
1600
1700


SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 11-JULY-61
ANIMAL NO. 1
RECORDER NO. 2
DATA PAGE NO. 5-56
TEMPERATURE
55
50
45
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0600
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1300
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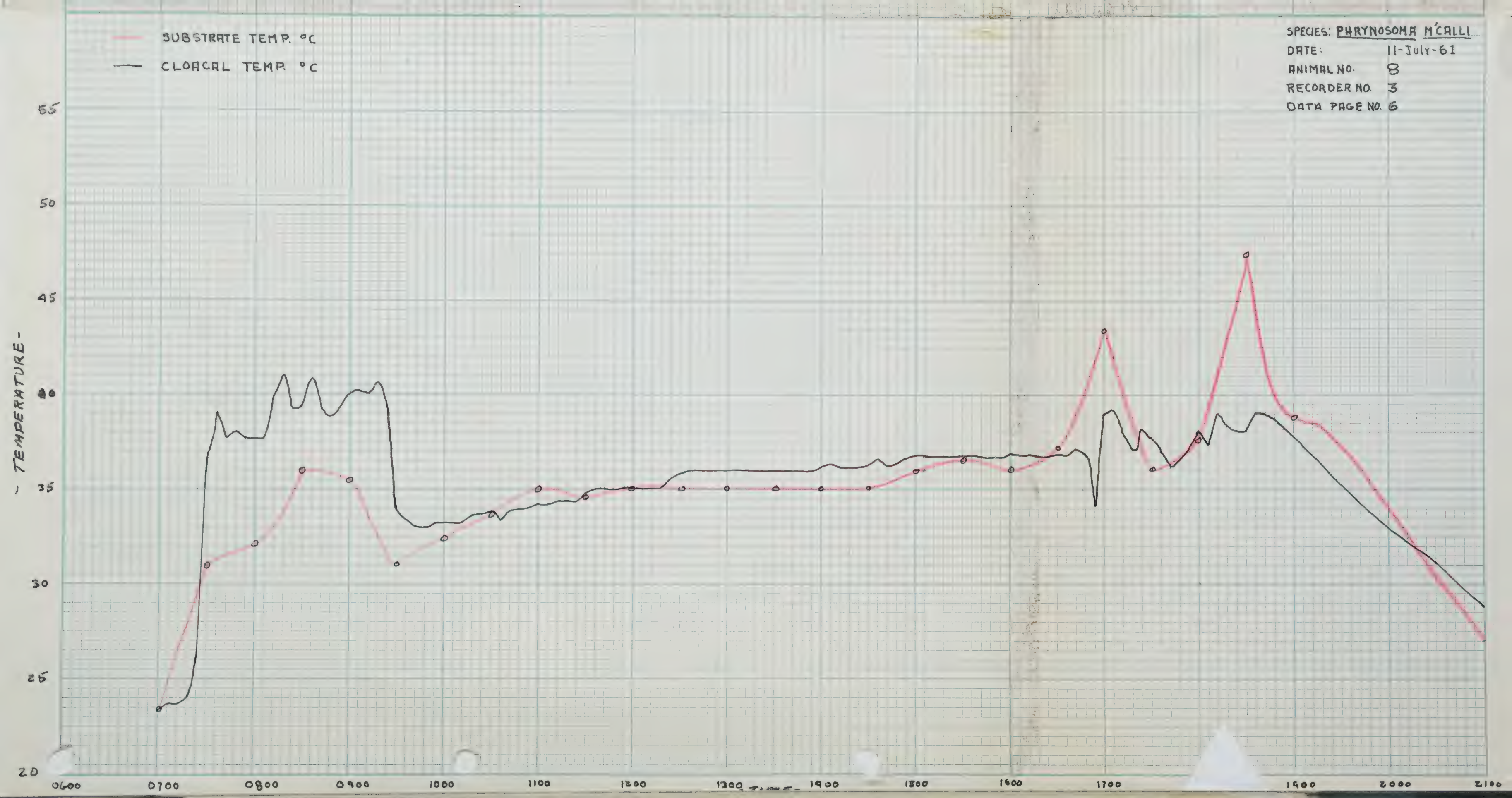
SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 11-July-61
ANIMAL NO. 8
RECORDER NO. 3
DATA PAGE NO. 6
- TEMPERATURE -
55
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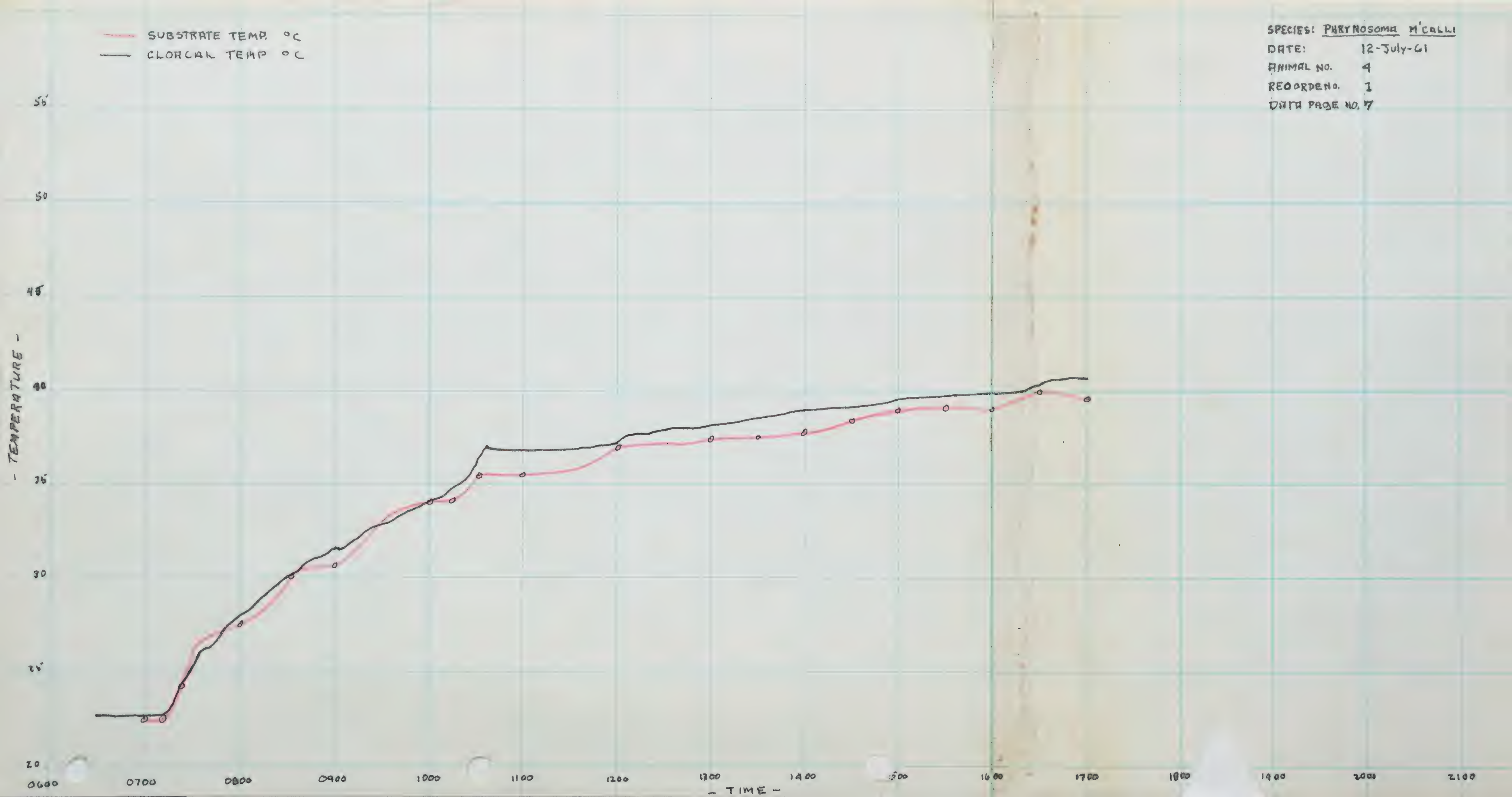
SUBSTRATE TEMP. °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 12-July-61
ANIMAL NO. 4
RECORDER NO. 1
DATA PAGE NO. 7
55
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- TEMPERATURE -
0600
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1200
1300
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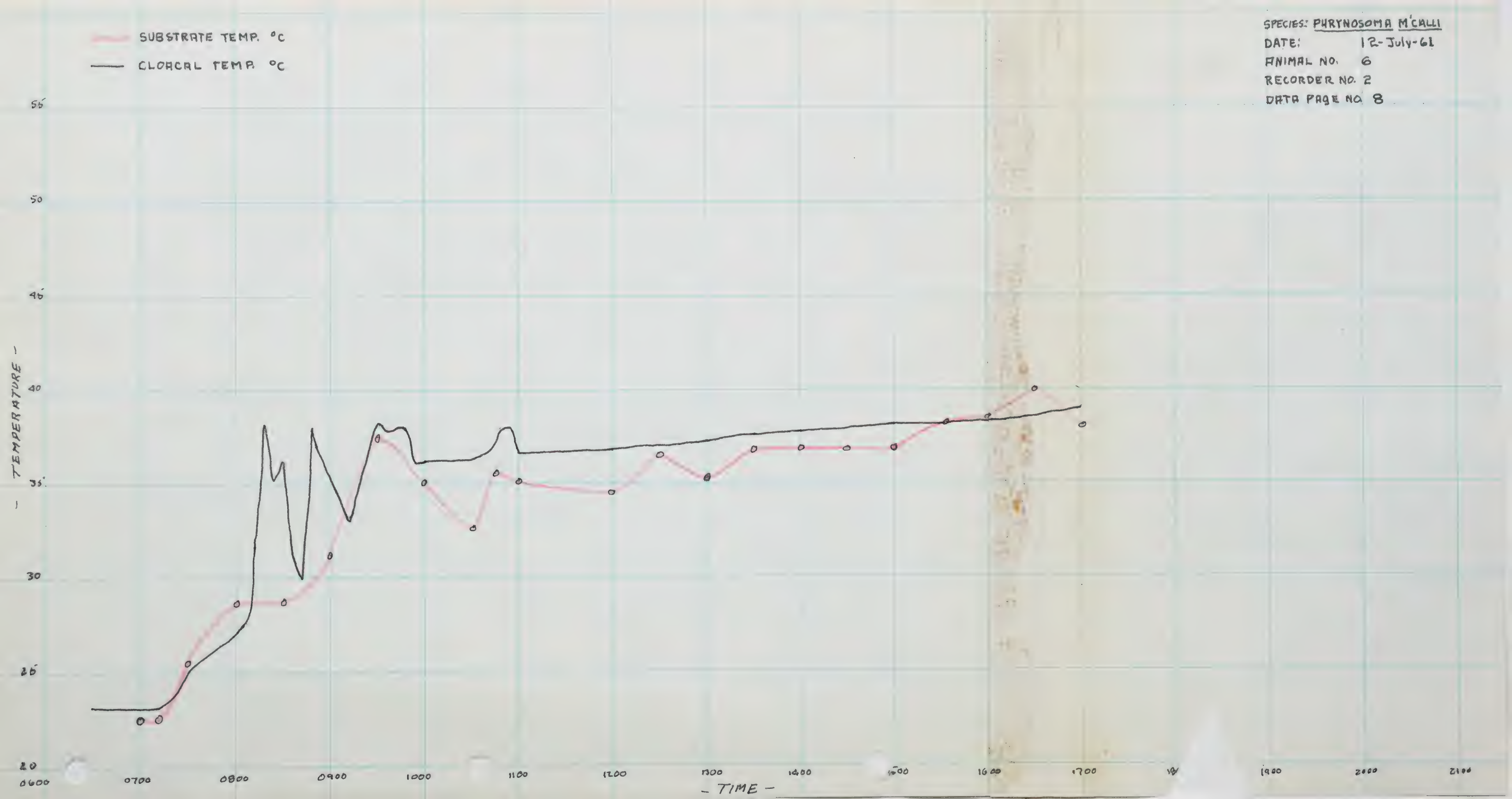
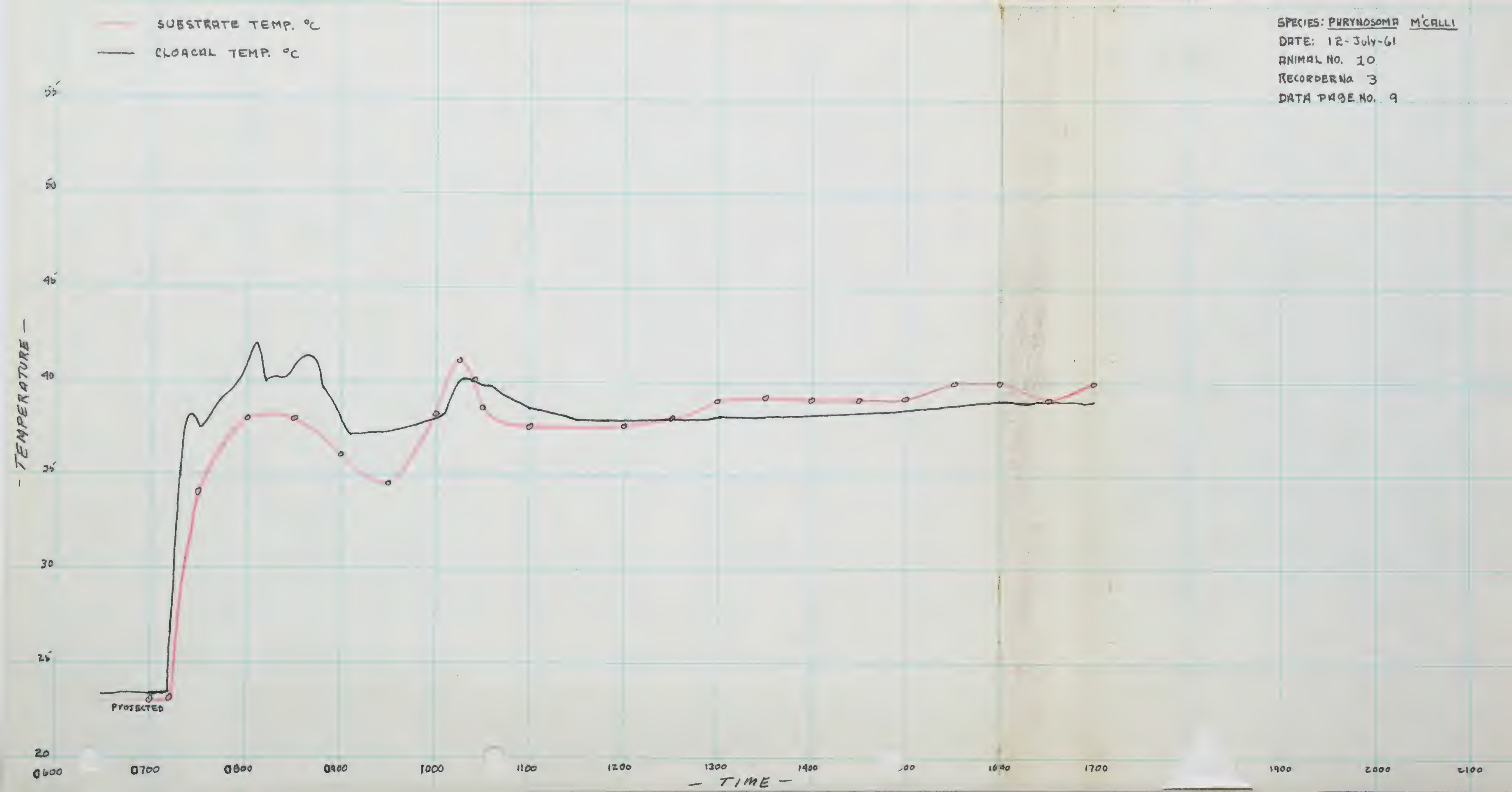
2100
- TIME -

SUBSTRATE TEMP. °C

CLOACAL TEMP. °C

SPECIES: PHRYNOSOMA M'CALLI
DATE: 12-July-61
ANIMAL NO. 6
RECORDER NO. 2
DATA PAGE NO. 8




SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 12-July-61
ANIMAL NO. 10
RECORDER No 3
DATA PAGE NO. 9
- TEMPERATURE -
55
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PROJECTED
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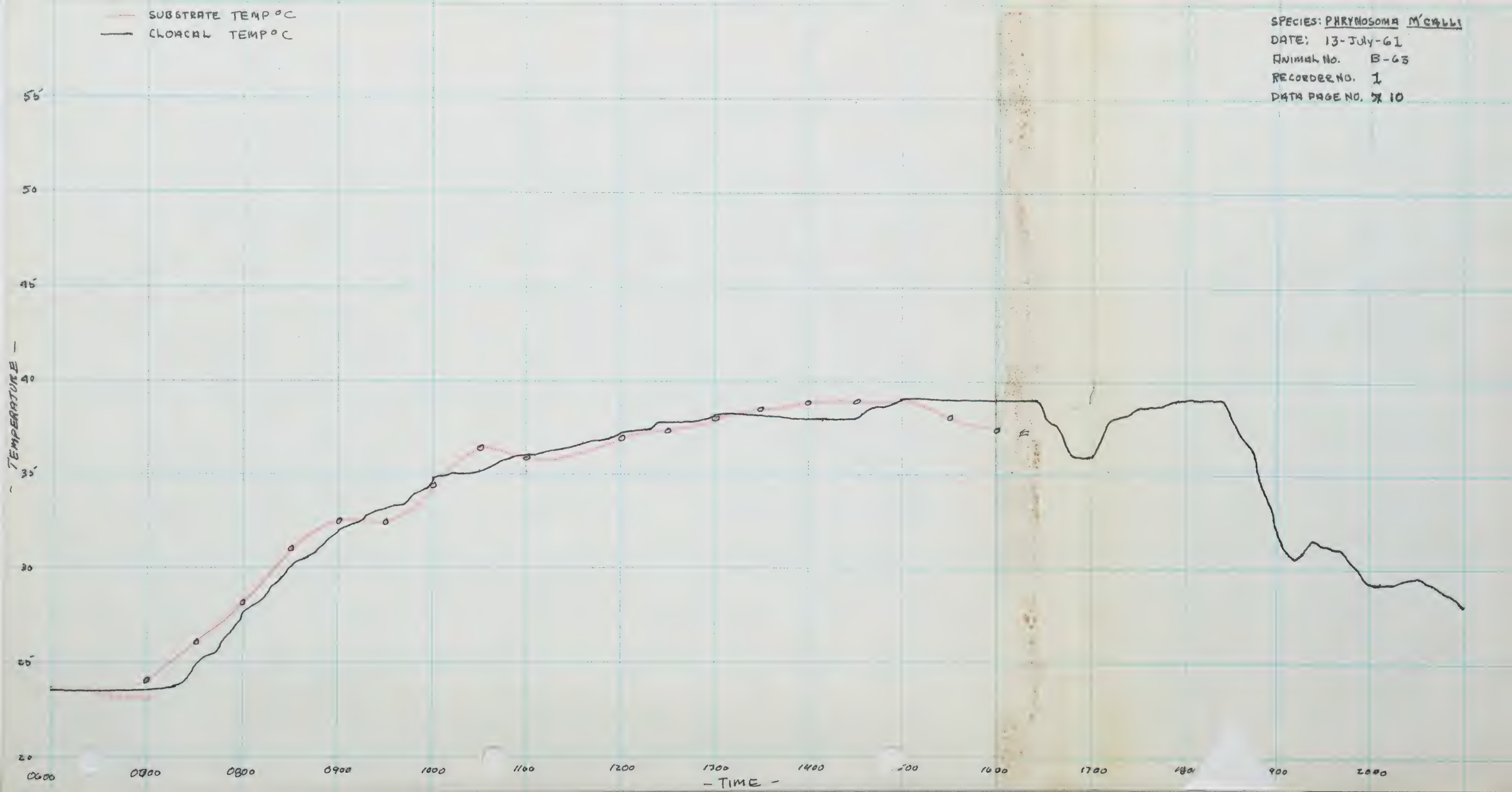
- TIME -


SUBSTRATE TEMP °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 13-July-61
ANIMAL No. B-63
RECORDER NO. 1
DATA PAGE NO. X 10
55
50
45
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35
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20
- TEMPERATURE -
0600
0700
0800
0900
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1200
1300
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1500
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1700
1800
1900
2000
- TIME -

SUBSTRATE TEMP° C

CLOACAL TEMP° C

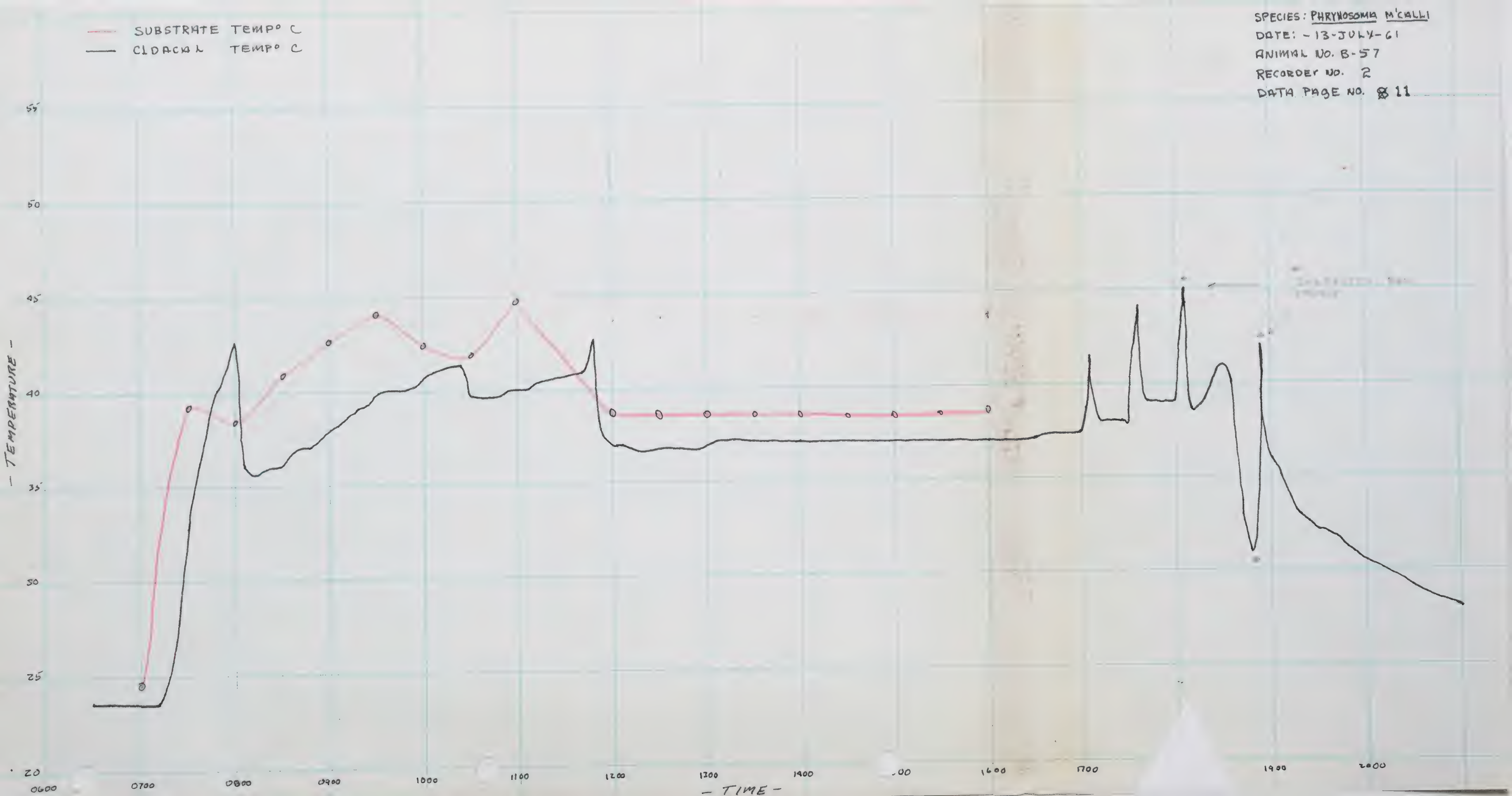
SPECIES: PHRYNOSOMA M'CALLI

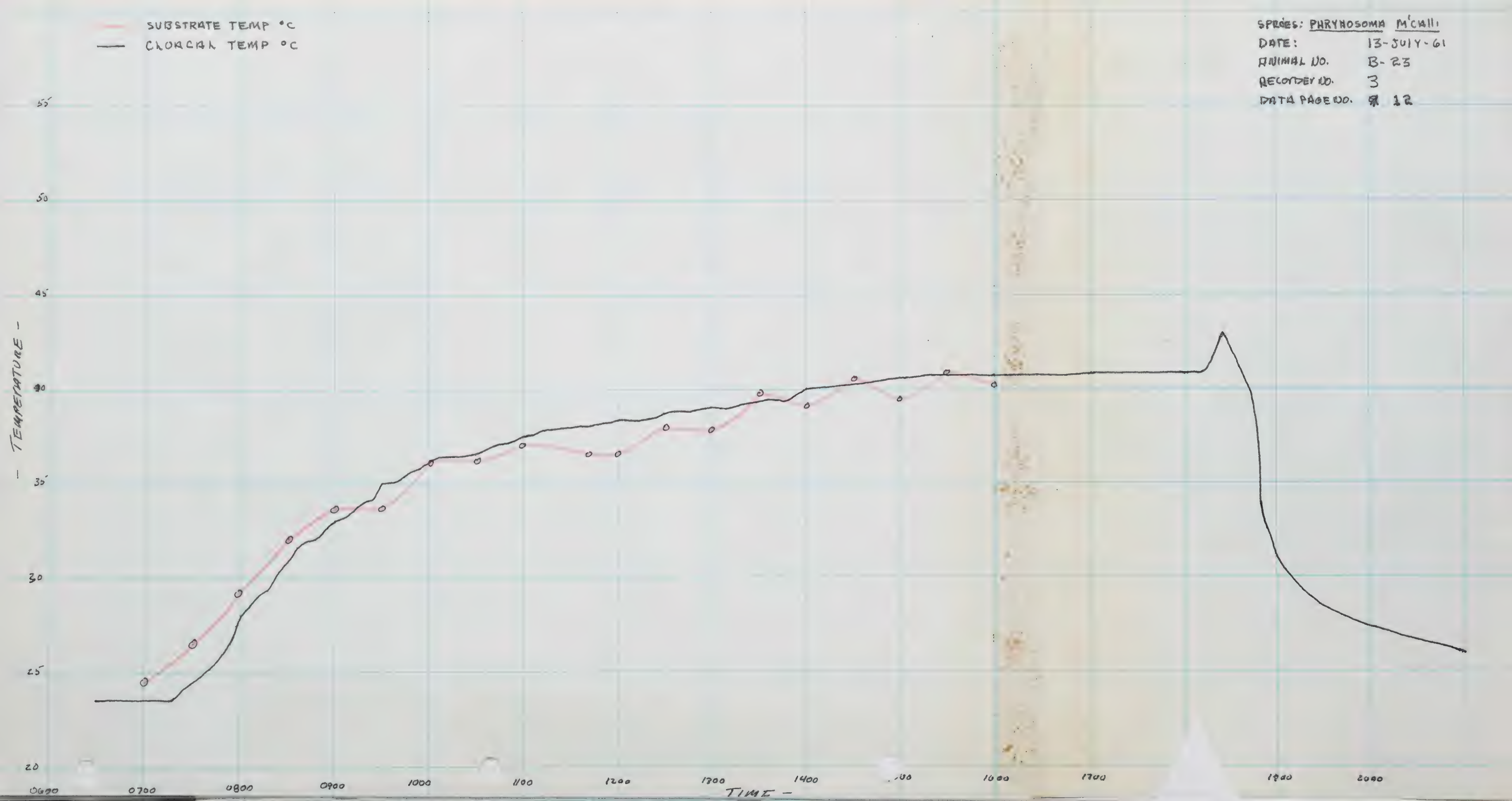
DATE: - 13-JULY-61

ANIMAL NO. B-57

RECORDER NO. 2

DATA PAGE NO. ~~8~~ 11




SUBSTRATE TEMP °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 13-JULY-61
ANIMAL NO. B-23
RECORDER NO. 3
DATA PAGE NO. # 12
55
50
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35
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25
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- TEMPERATURE -
0600
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0900
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1300
1400
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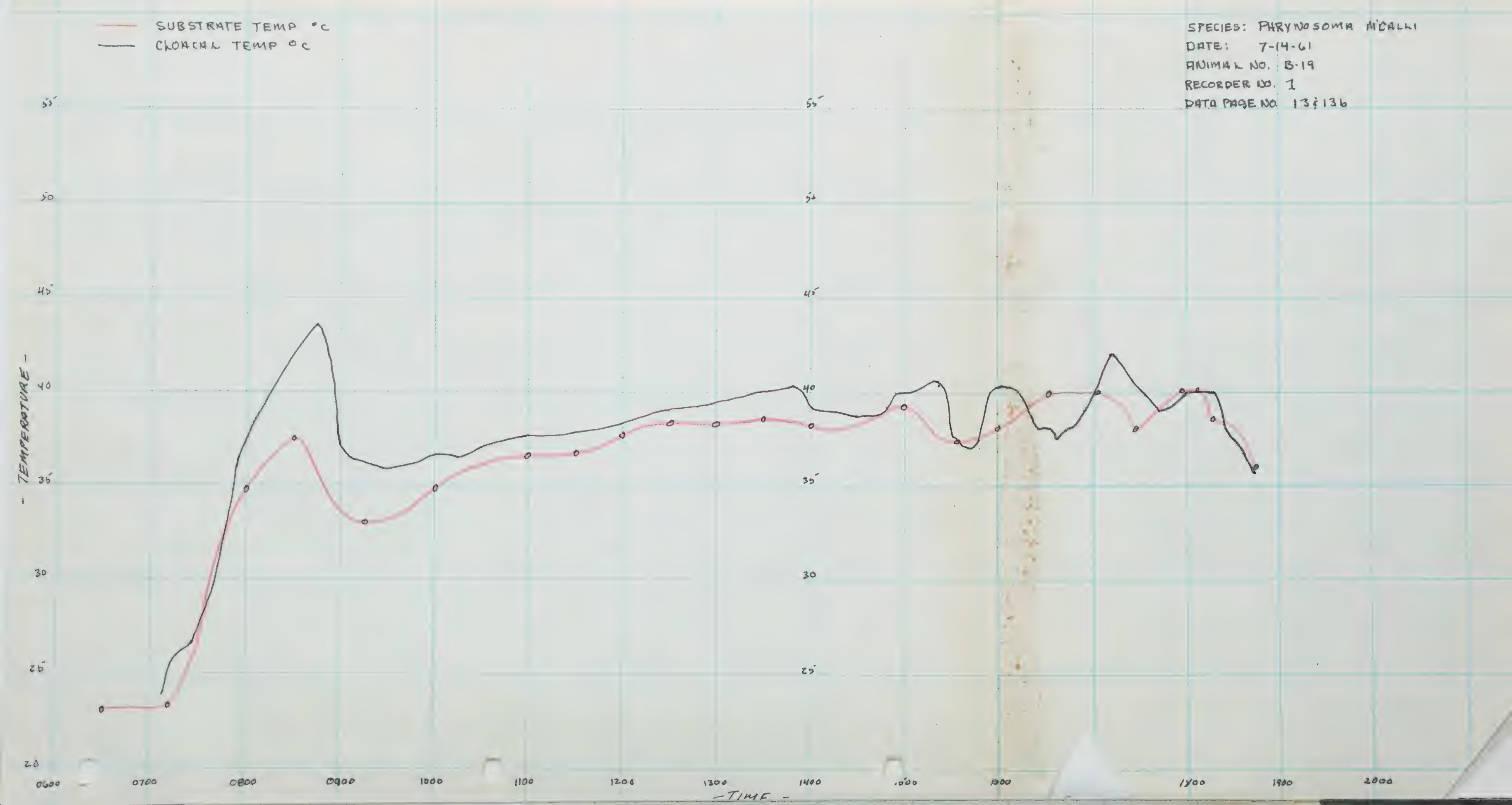
1600
1700
1800
2000
- TIME -


SUBSTRATE TEMP °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA MCALLI
DATE: 7-14-61
ANIMAL NO. B-19
RECORDER NO. 1
DATA PAGE NO. 13 & 136
- TEMPERATURE -
55
50
45
40
35
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25
20
0600
0700
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0900
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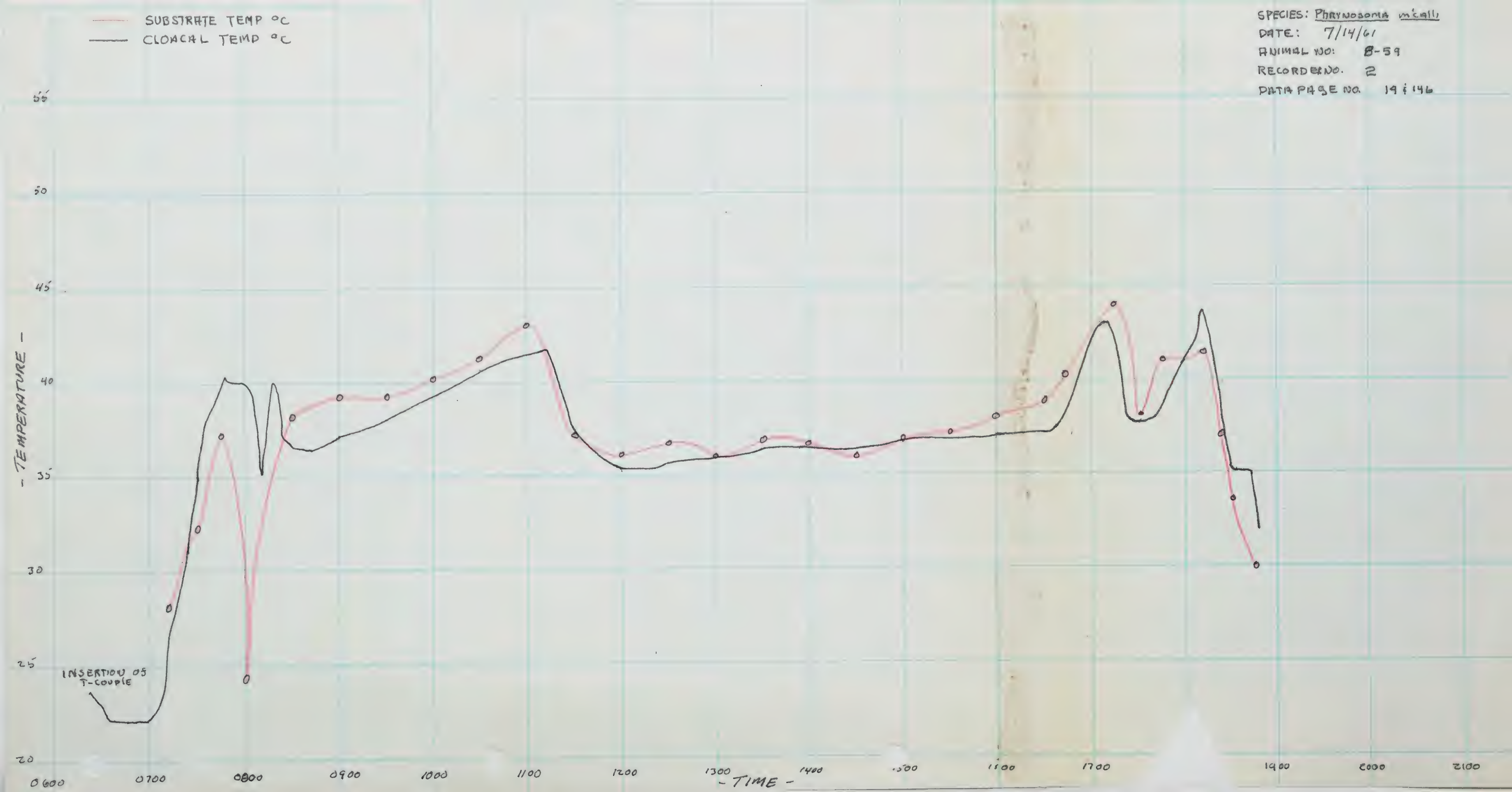
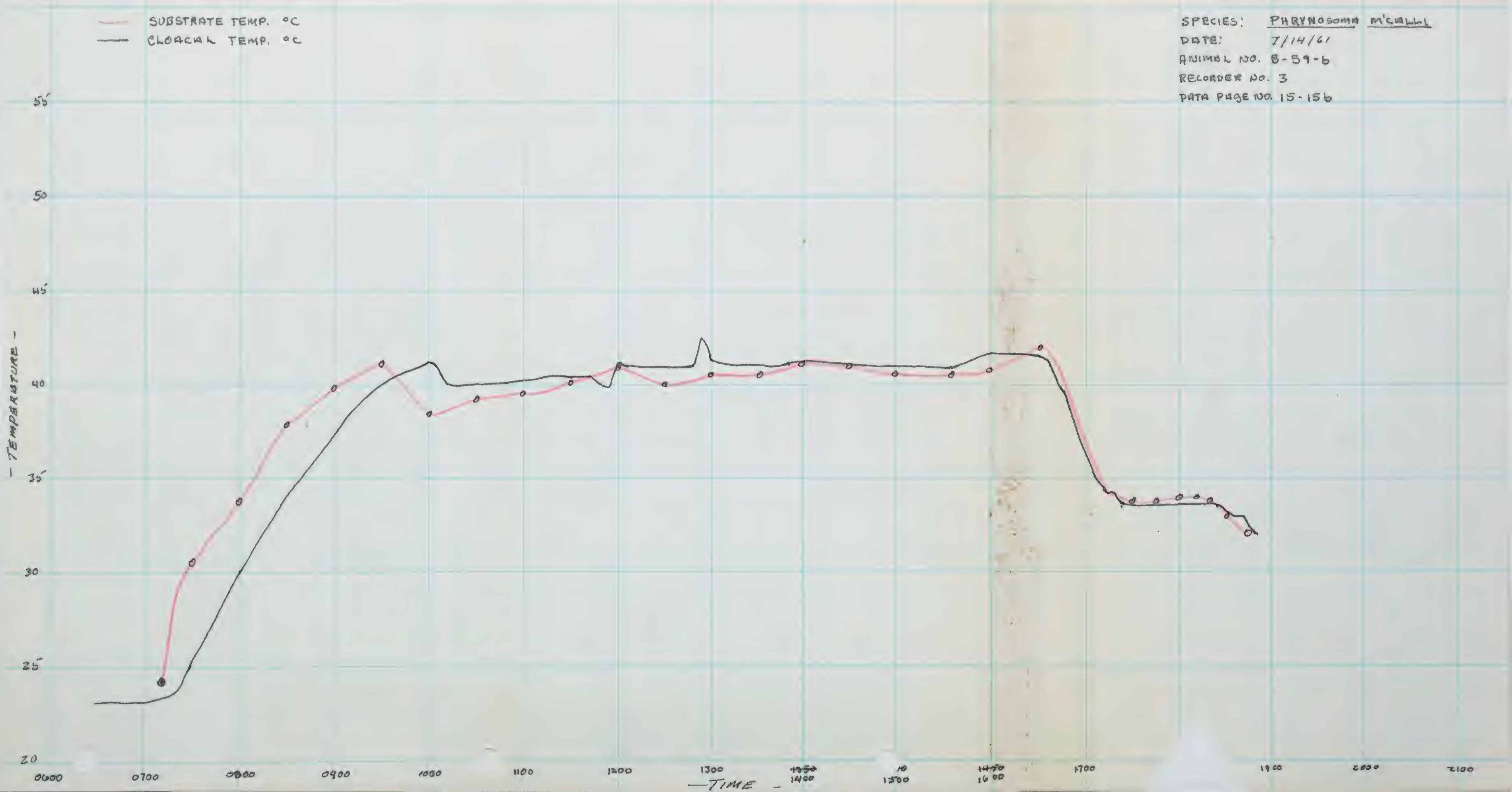
1100
1200
1300
1400
1500
1600
1700
1800
2000
- TIME -

SUBSTRATE TEMP °C
CLOACAL TEMP °C

SPECIES: Phrynosoma m'calli
DATE: 7/14/61
ANIMAL NO: B-59
RECORD & NO. 2
DATA PAGE NO. 19 & 146




SUBSTRATE TEMP. °C
CLOACAL TEMP. °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 7/14/61
ANIMAL NO. B-59-b
RECORDER NO. 3
DATA PAGE NO. 15-15b
55
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35
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- TEMPERATURE -
0600
0700
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0900
1000
1100
1200
1300
1400
1500
1600
1700
1900
2000
2100
- TIME -

— SUBSTRATE TEMP. °C
— CLOACAL TEMP. °C

Thryonomys m'ecilli
July 15, 1961
Animal No. 13
Recorder No. 1
Data Page No. 16

- TEMPERATURE -

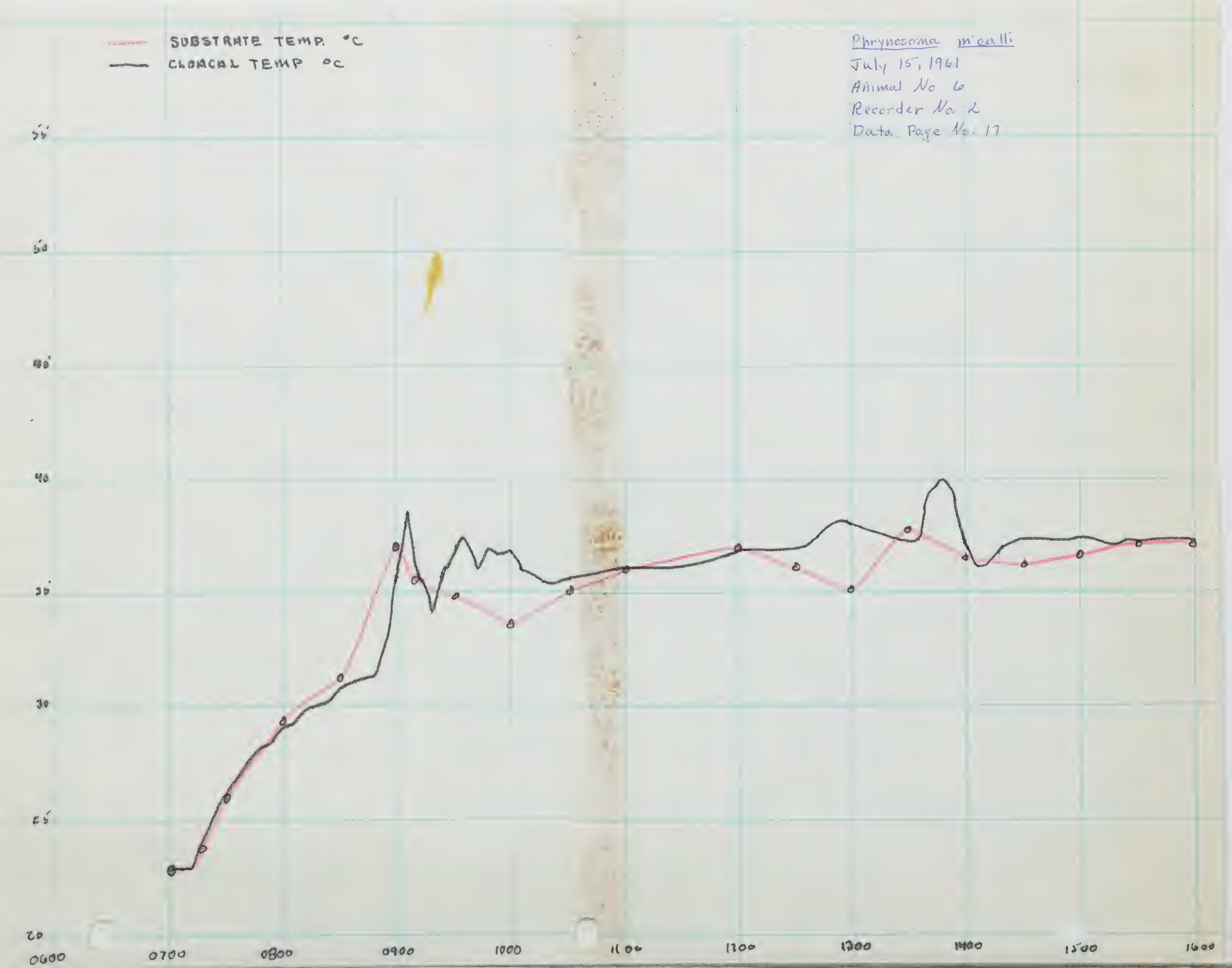
55
50
45
41
35
30
25
20

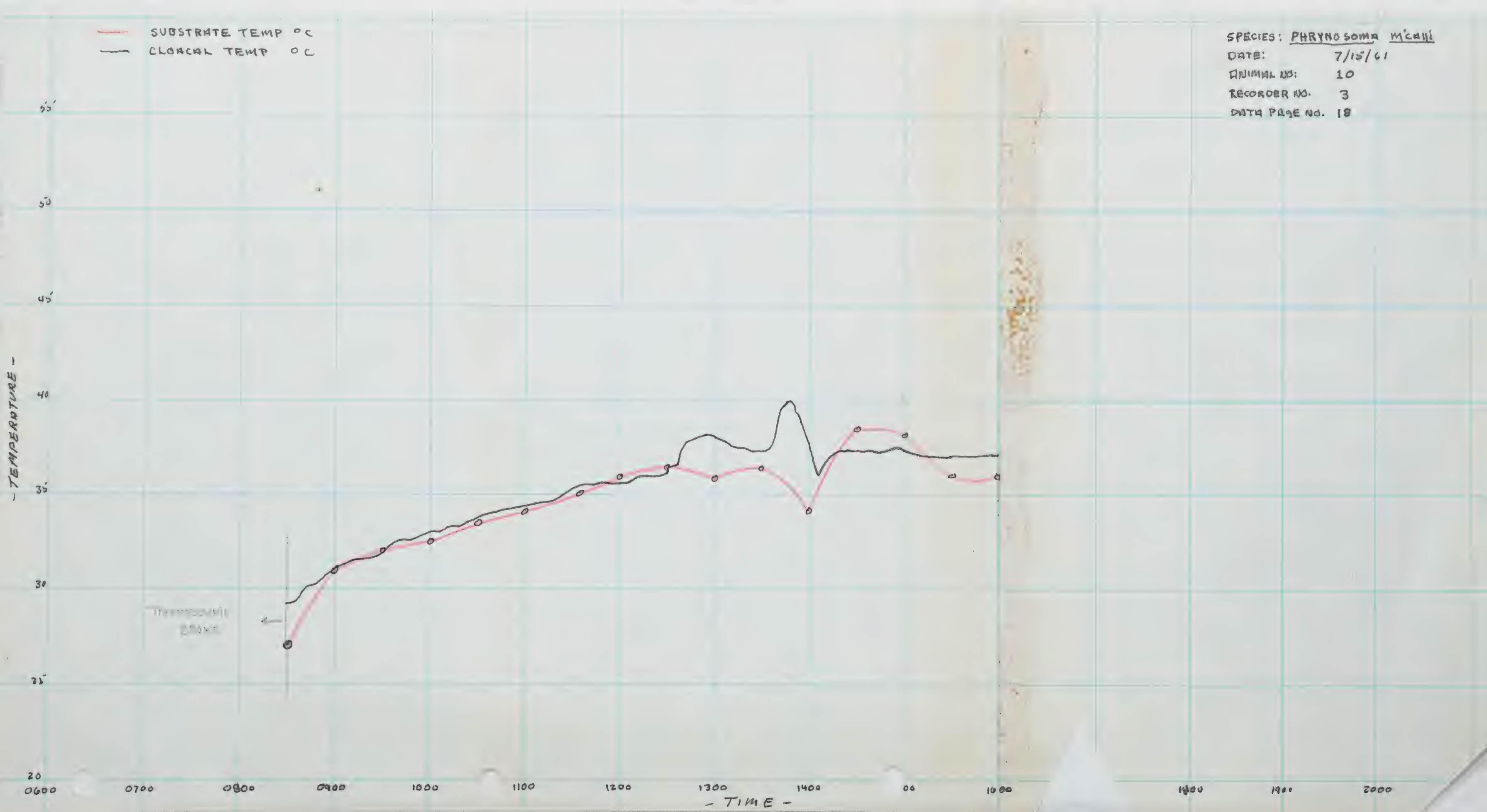
0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 1600

SUBSTRATE TEMP. °C

CLOACAL TEMP °C

Phrynosoma m'calli
July 15, 1961
Animal No. 6
Recorder No. 2
Data Page No. 17




SUBSTRATE TEMP °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 7/15/61
ANIMAL NO: 10
RECORDER NO. 3
DATA PAGE NO. 18
- TEMPERATURE -
55
50
45
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25
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0600
0700
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0900
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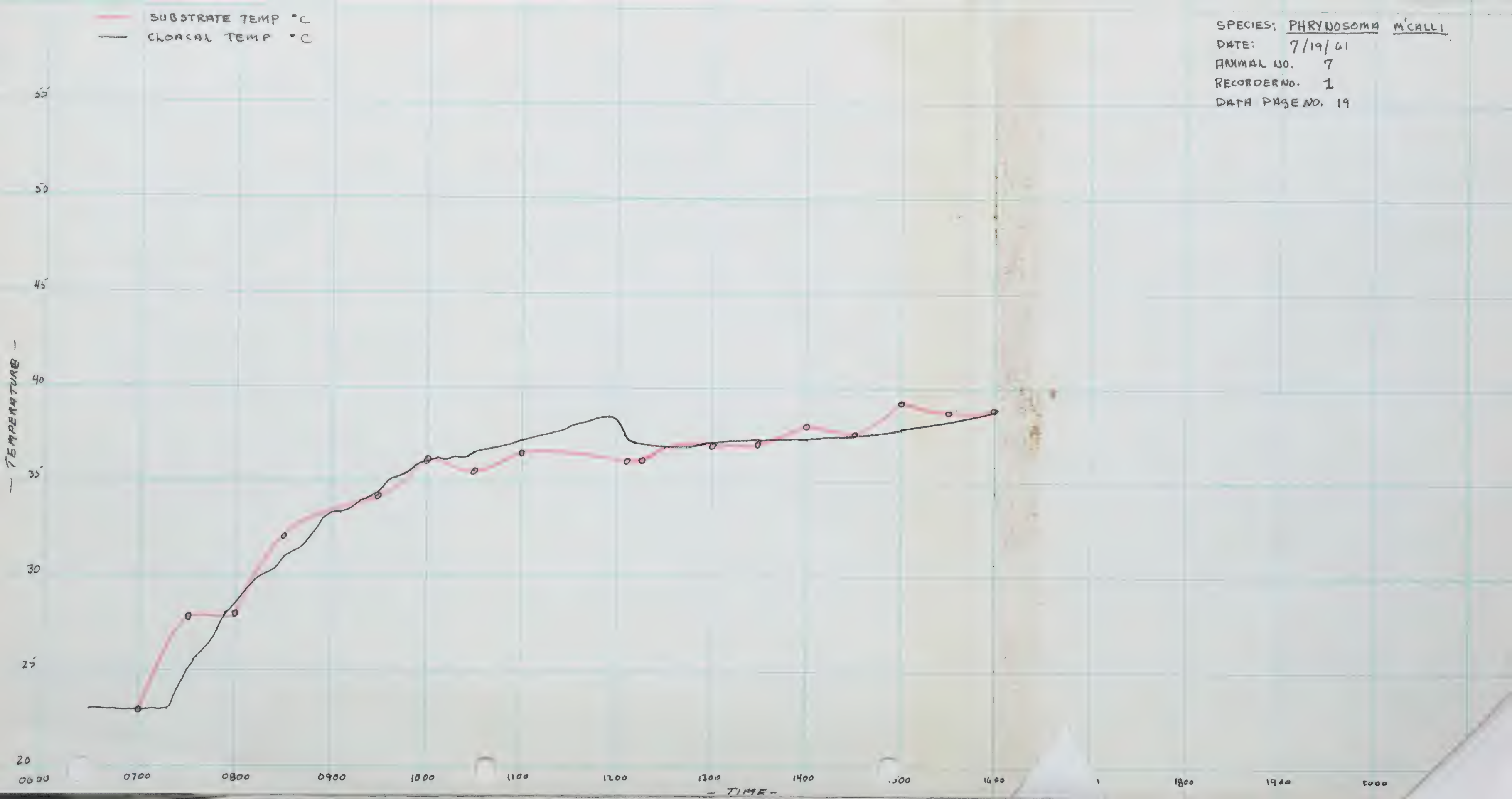
- TIME -

SUBSTRATE TEMP °C
CLOACAL TEMP °C

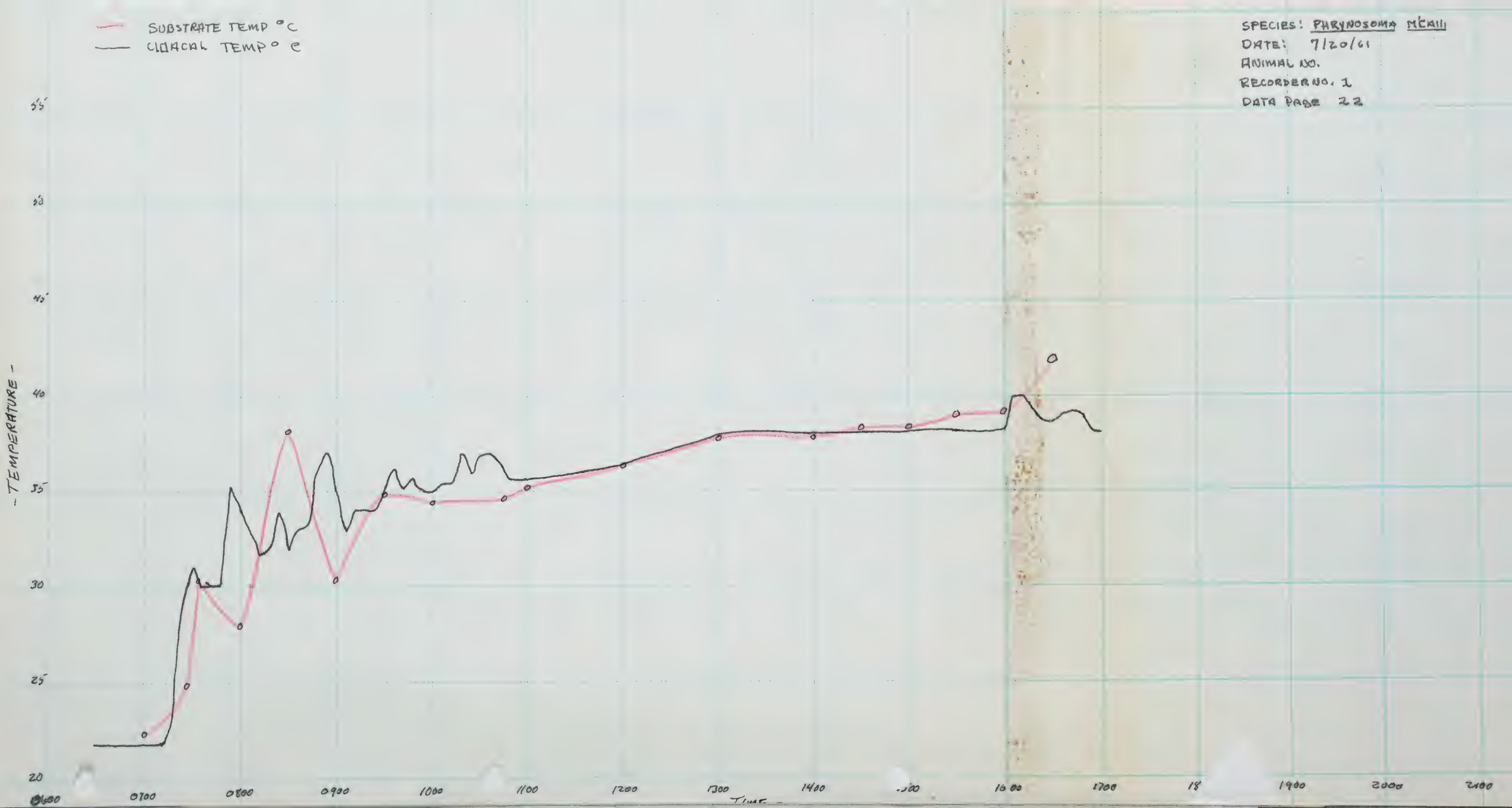
SPECIES: PHRYNOSOMA M'CALLI
DATE: 7/19/61
ANIMAL NO. 7
RECORDER NO. 1
DATA PAGE NO. 19



SUBSTRATE TEMP. °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 7/19/61
ANIMAL NO. B-79 (PALM SPRINGS)
RECORDER NO. 2
DATA PAGE NO. 20
- TEMPERATURE -
- TIME -
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000

SUBSTRATE TEMP °C
CLOACAL TEMP °C

Phrynosoma mcalli
July 19, 1961
Animal No. 11
Recorder No. 3
Data Page No. 21


SUBSTRATE TEMP °C
CLOACAL TEMP ° C
SPECIES: PHRYNOSOMA MCALLI
DATE: 7/20/61
ANIMAL NO.
RECORDER NO. 1
DATA PAGE 22
- TEMPERATURE -
55
50
45
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0600
0700
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1300
1400
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1700
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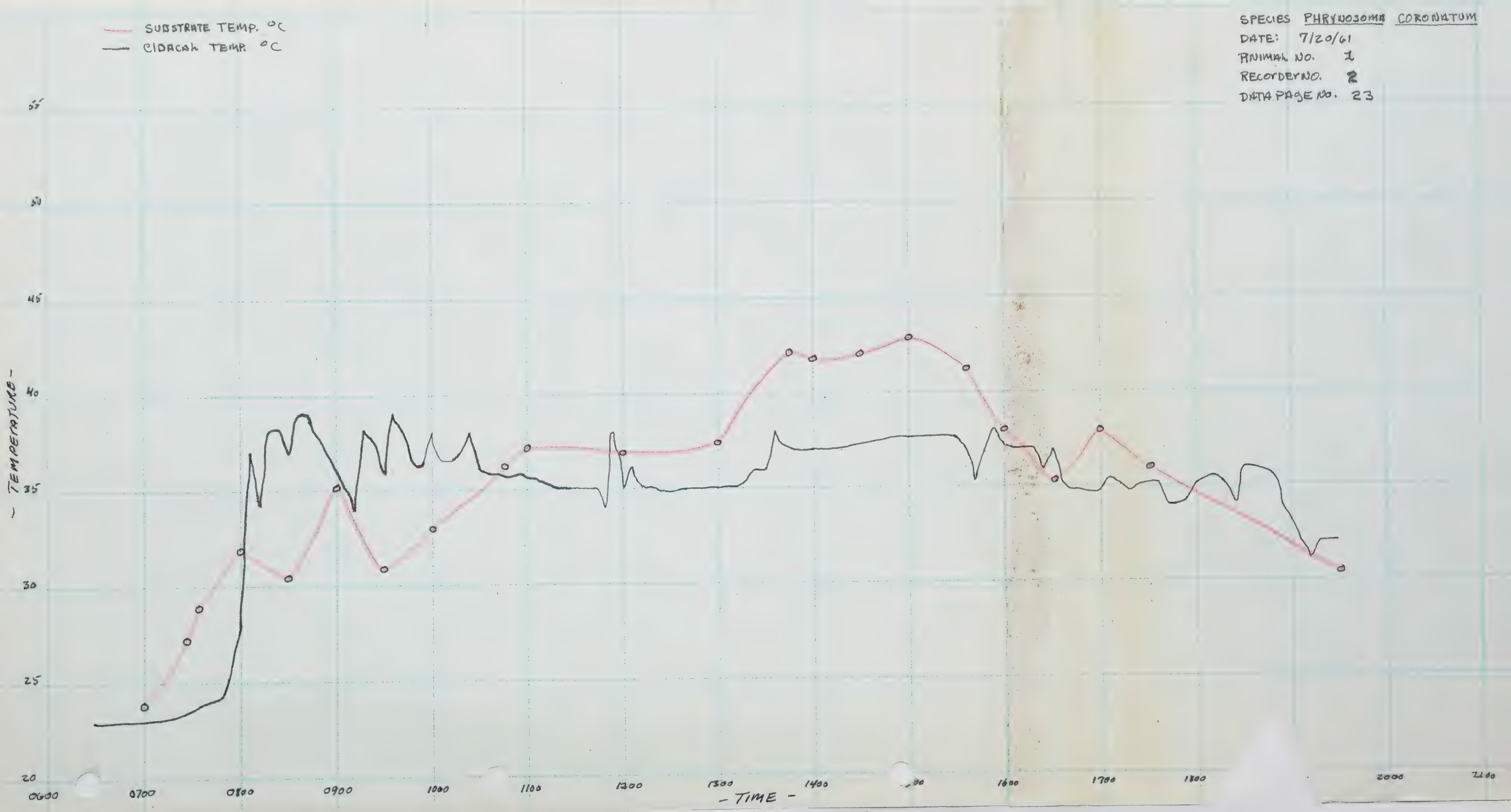
2000
2100
- TIME -

SUBSTRATE TEMP. °C

CIDACAN TEMP. °C

SPECIES PHRYNOSOMA CORONATUM
DATE: 7/20/61
ANIMAL NO. 1
RECORDER NO. 2
DATA PAGE NO. 23



SUBSTRATE TEMP. °C

CLOACAL TEMP °C

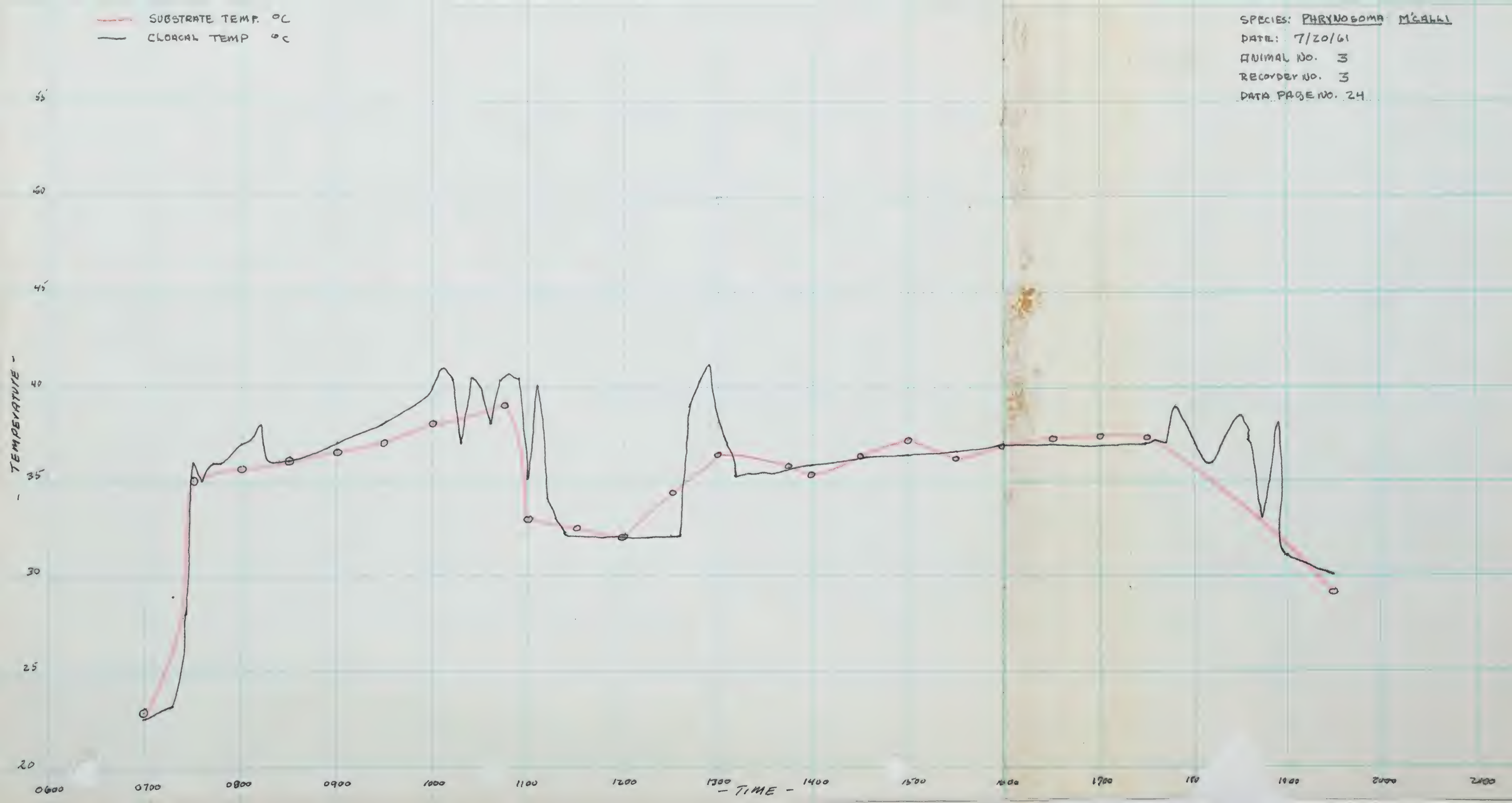
SPECIES: PHRYNOSOMA M'CALLI

DATE: 7/20/61

ANIMAL NO. 3

RECORDER NO. 3

DATA PAGE NO. 24



SUBSTRATE TEMP. °C

CLOACAL TEMP °C

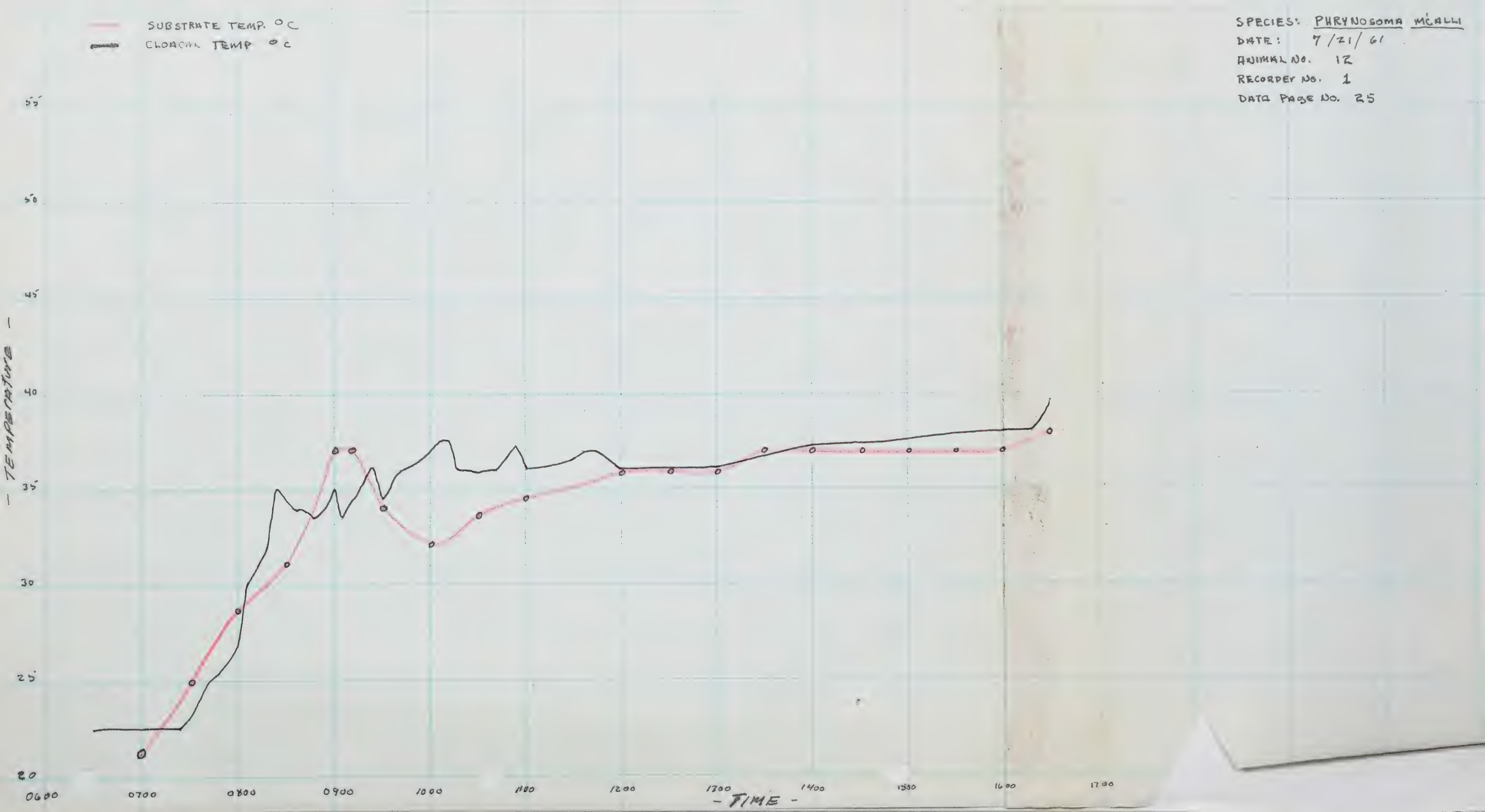
SPECIES: PHRYNOSOMA MCALLI

DATE: 7/21/61

ANIMAL NO. 12

RECORDER NO. 1

DATA PAGE NO. 25



SUBSTRATE TEMP. °C
CLOACAL TEMP °C
Phrynosoma m'calli
July 21, 1961
Animal No. 0
Recorder No. 2
Data Page No. 24
50
50
45
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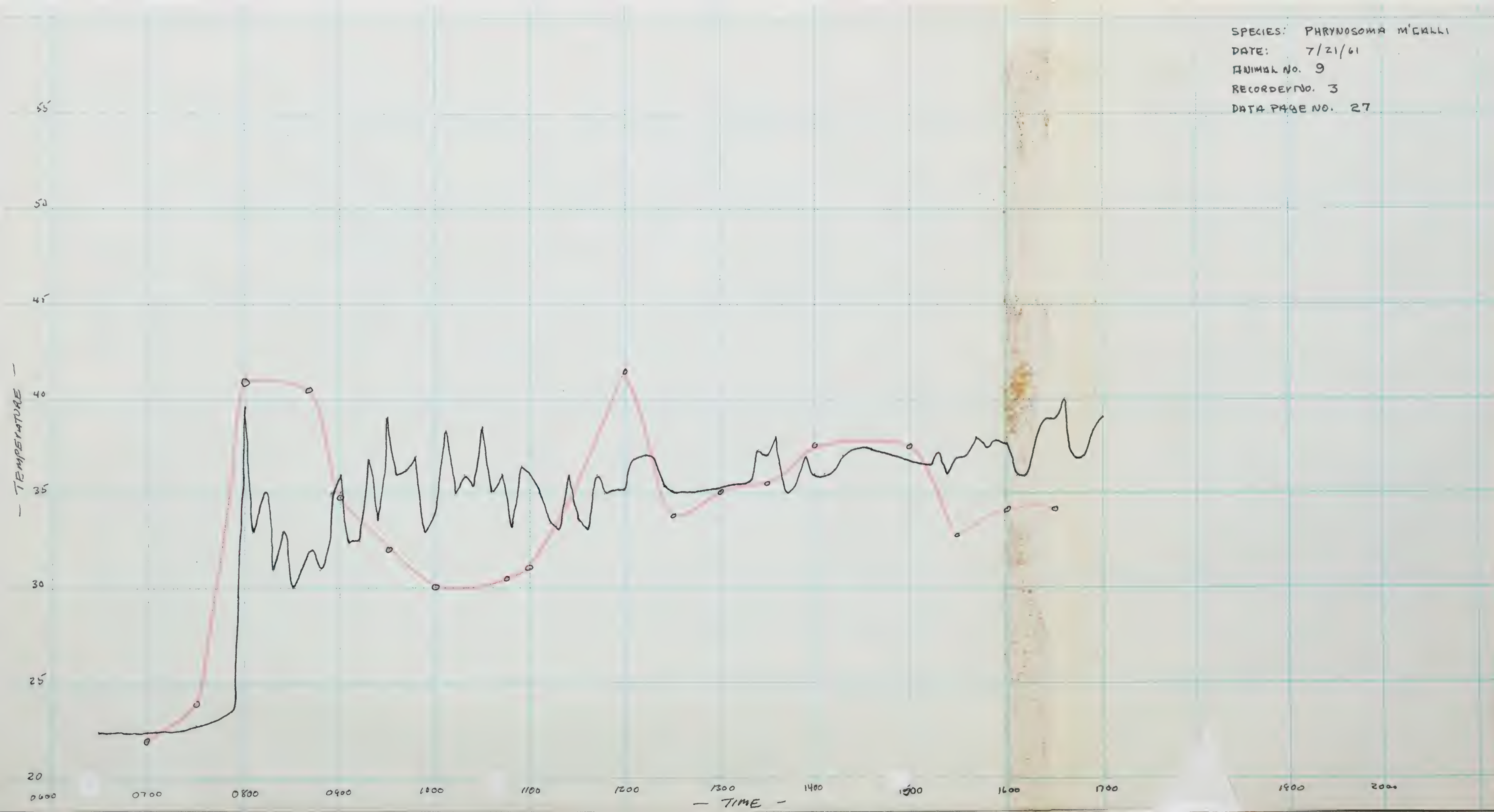
35
30
25
20
- TEMPERATURE -
THERMO-COUPLE
ANIMAL WAS
PLACED IN A
Cold BOTTLE -
0600
0700
0800
0900
1000
1100
1200
1300
1400
- TIME -

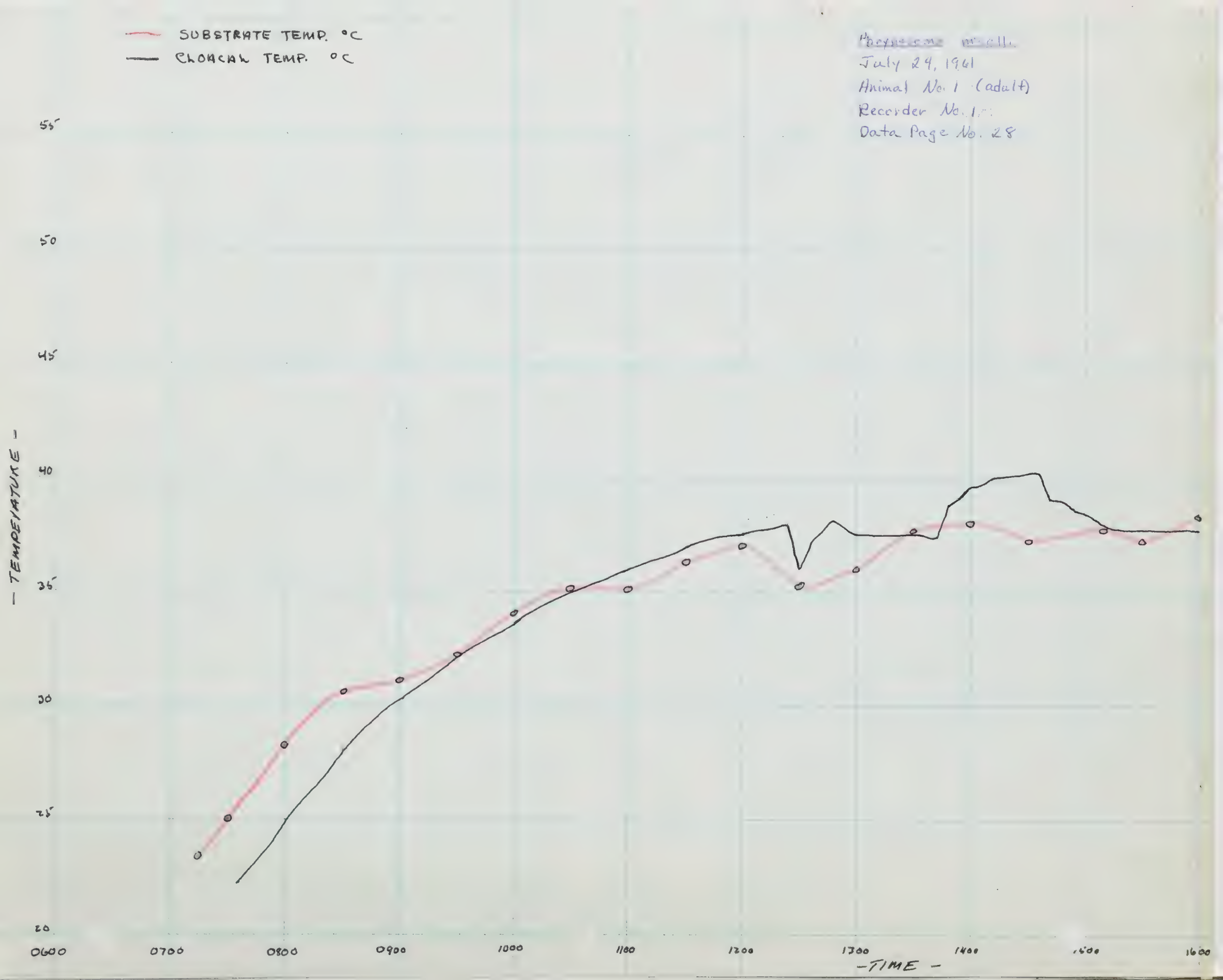
SPECIES: PHRYNOSOMA M'CALLI
DATE: 7/21/61
ANIMAL NO. 9
RECORDER NO. 3
DATA PAGE NO. 27



SUBSTRATE TEMP. °C

CLOACAL TEMP. °C

Phrynosoma m. cilli.
July 29, 1961
Animal No. 1 (adult)
Recorder No. 1
Data Page No. 28



SUBSTRATE TEMP °C

CLOACAL TEMP °C

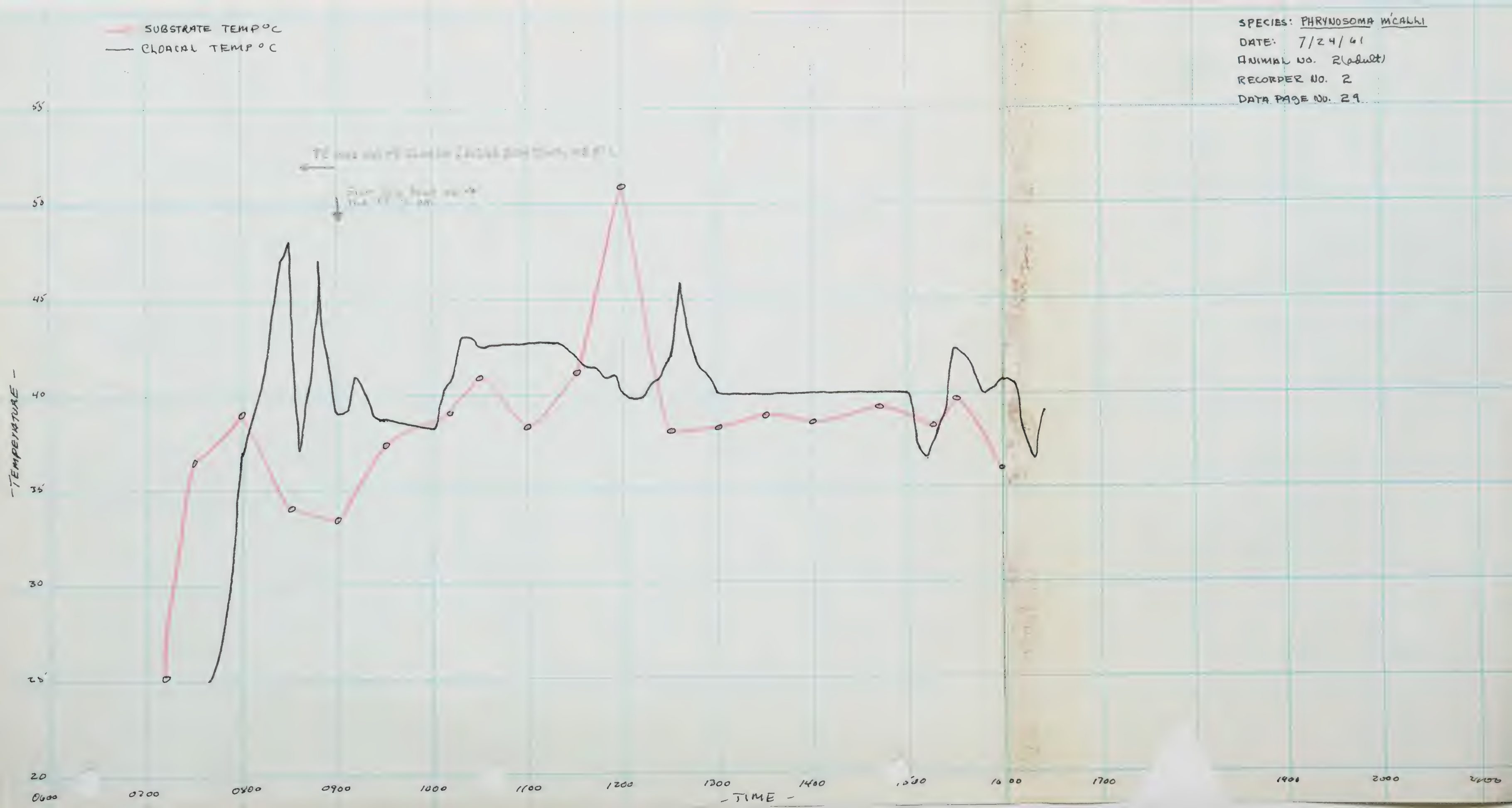
SPECIES: PHRYNOSOMA MCALLI

DATE: 7/24/61

ANIMAL NO. 2(adult)

RECORDER NO. 2

DATA PAGE NO. 29



SUBSTRATE TEMP° C
—— CHOACAL TEMP °C

Phrynosoma m'calli
July 25, 1961
Animal No. 2
Recorder No. 2
Data Page 29 b

55
50
45
40
35
30
25
20

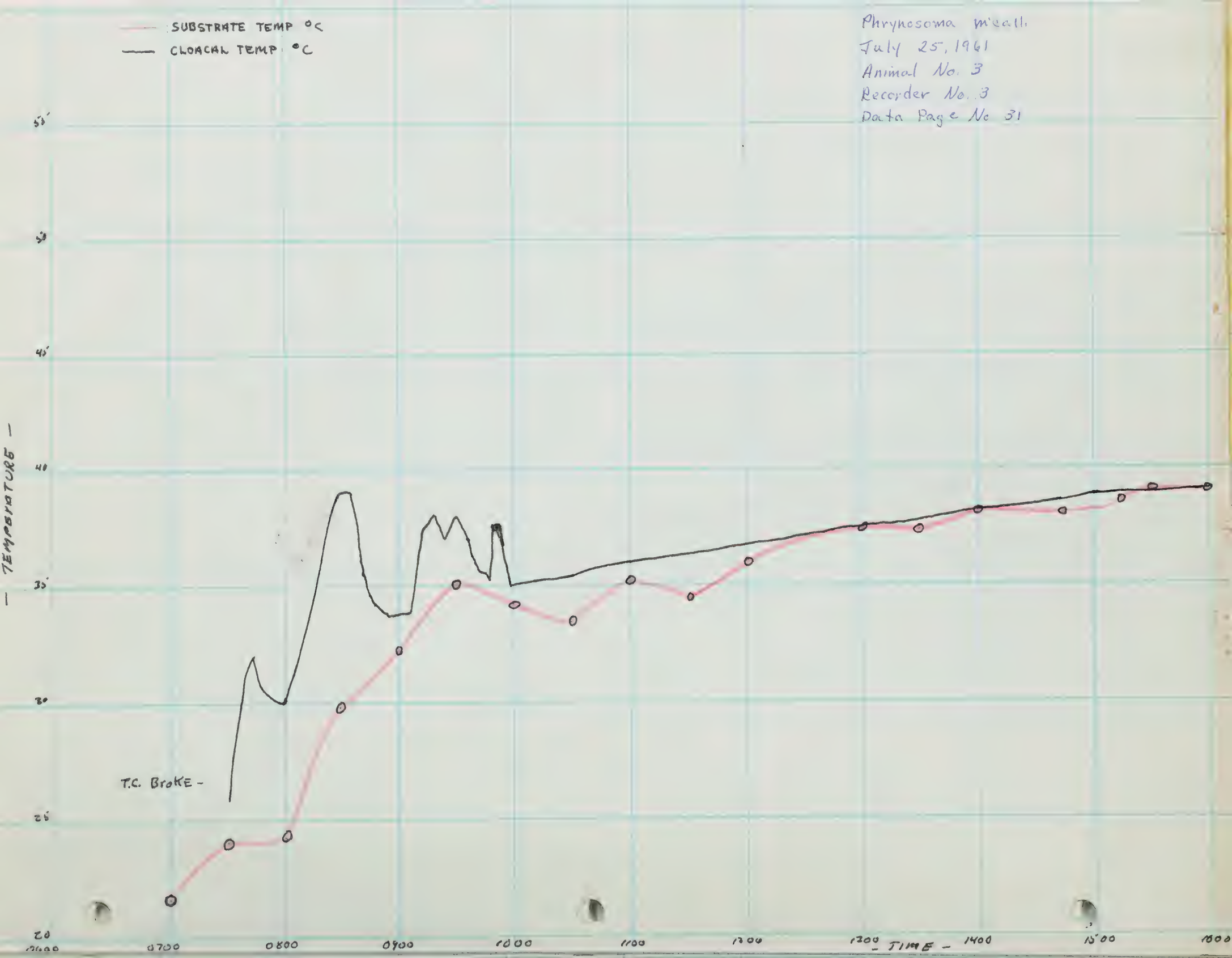
- TEMPERATURE -

0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 16

- TIME -

SUBSTRATE TEMP°C
CLOACAL TEMP °C

Phrynosoma mcallii
July 24, 1961
Animal No. 7
Recorder No. 3
Data Page No. 30


SUBSTRATE TEMP °C
CLOACAL TEMP °C
Phrynosoma m'calli
July 25, 1961
Animal No. 3
Recorder No. 3
Data Page No 31
— TEMPERATURE —
T.C. Broke -
— TIME —
0700
0800
0900
1000
1100
1200
1300
1400
1500
1600

SUBSTRATE TEMP. °C
CLOACAL TEMP. °C

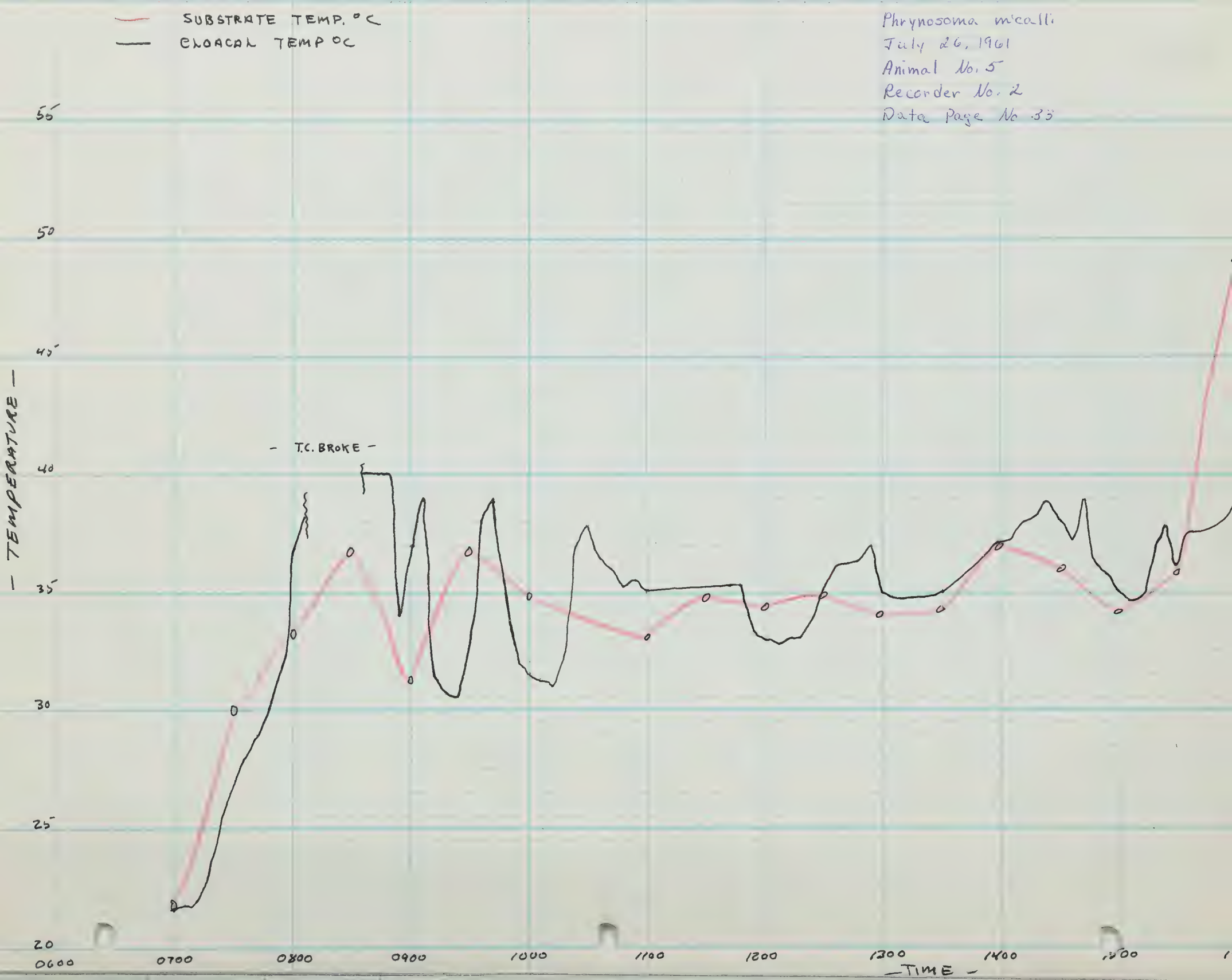
Phrynosoma m'calli
July 25, 1961
Animal No. 4
Recorder No. 1
Data Page No. 32

55
50
45
40
35
30
25
20

- TEMPERATURE -

0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 16

- TIME -


SUBSTRATE TEMP. °C
CLOACAL TEMP °C
Phrynosoma m'calli
July 26, 1961
Animal No. 5
Recorder No. 2
Data Page No 33
55
50
45
40
35
30
25
20
— TEMPERATURE —
— T.C. BROKE —
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500
— TIME —

SUBSTRATE TEMP °C
CLOACAL TEMP °C

Phrynosoma m'calli
July 26, 1961
Animal No. 6
Recorder No. 3
Data Page No 54

55°
50
45
40
35°
30
25°
20

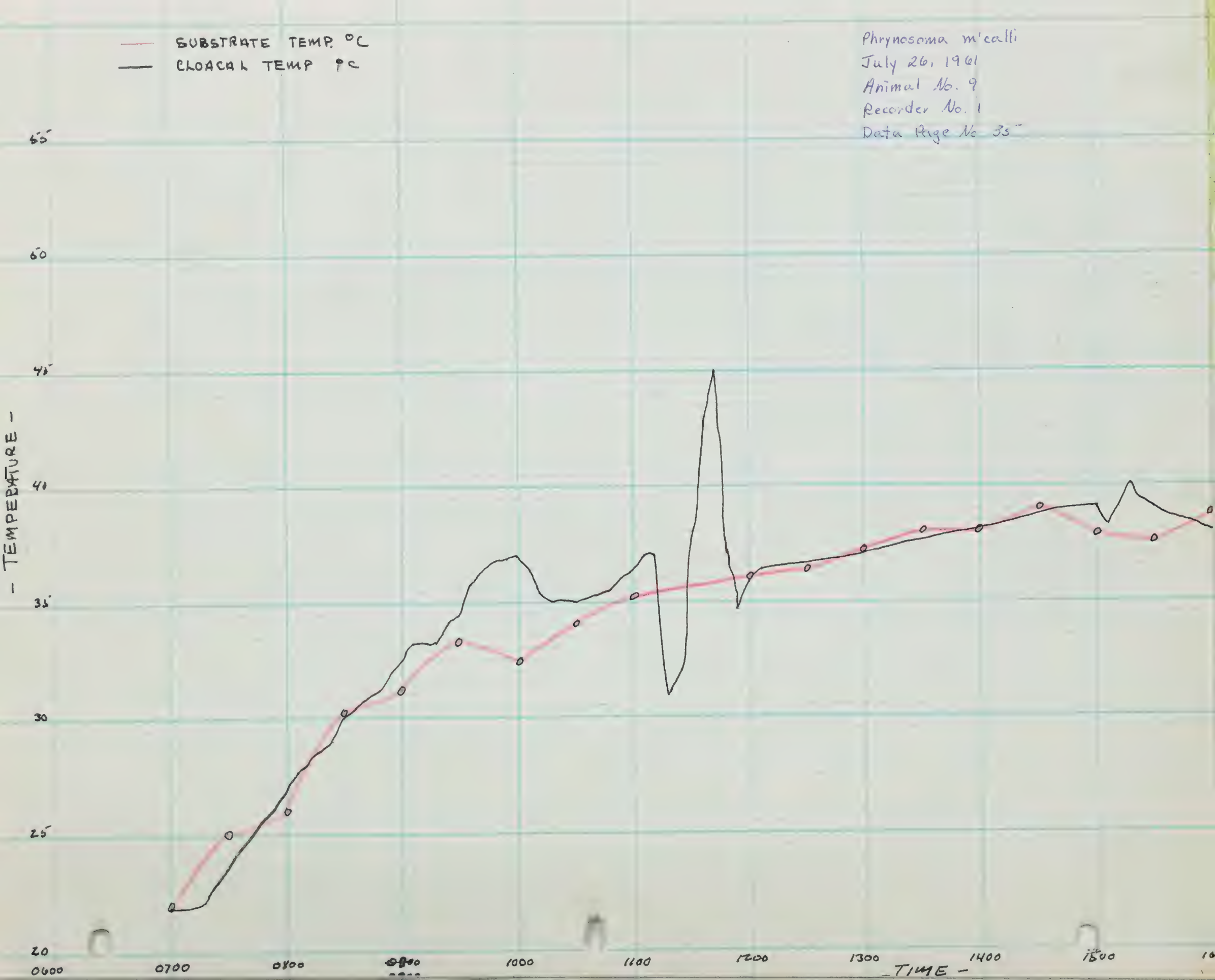
- TEMPERATURE -

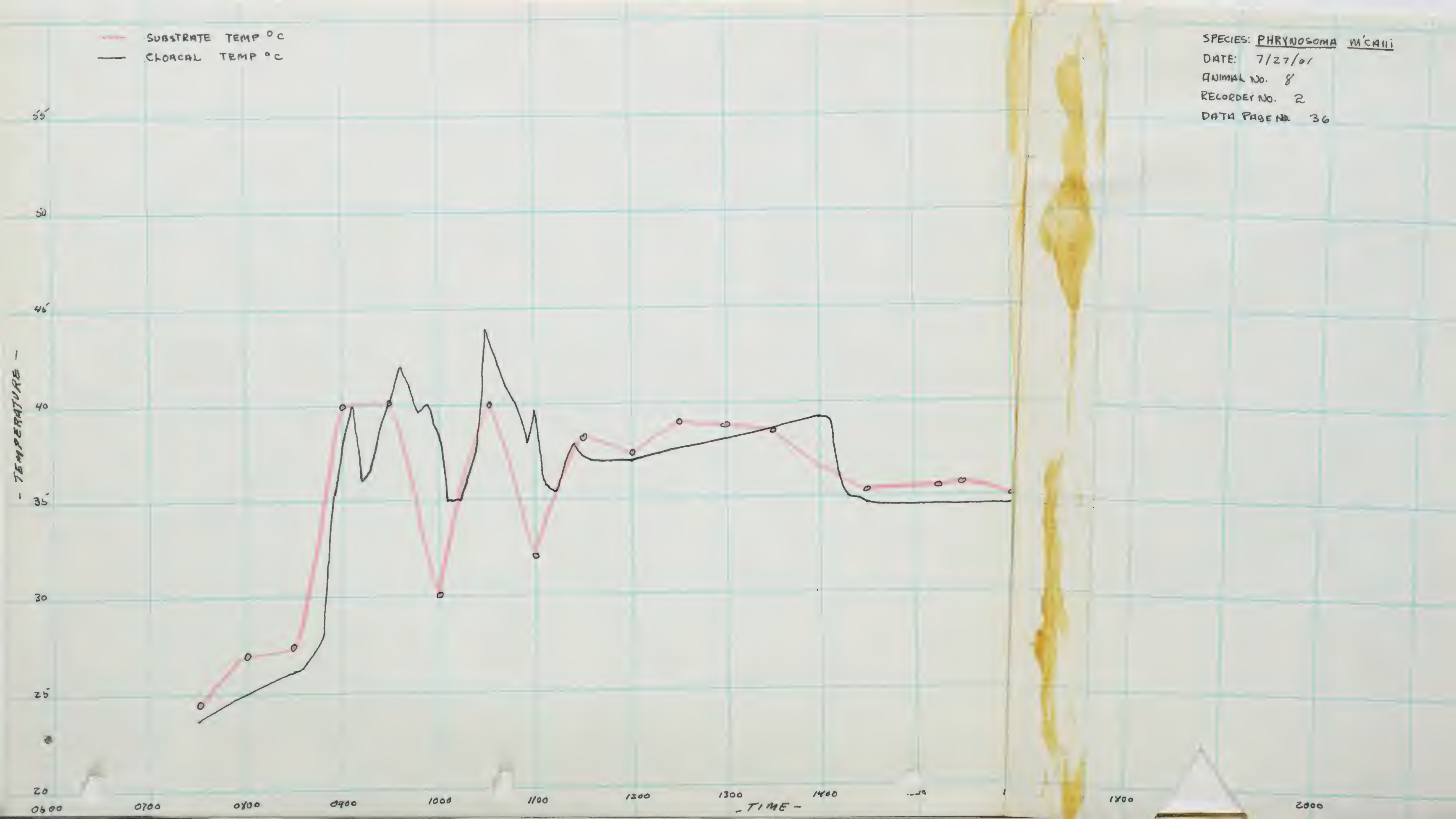
0600 0700 0800 0900 1000 1100 1200 1300 1400 1500 16

- TIME -

— SUBSTRATE TEMP. °C
— CLOACAL TEMP °C

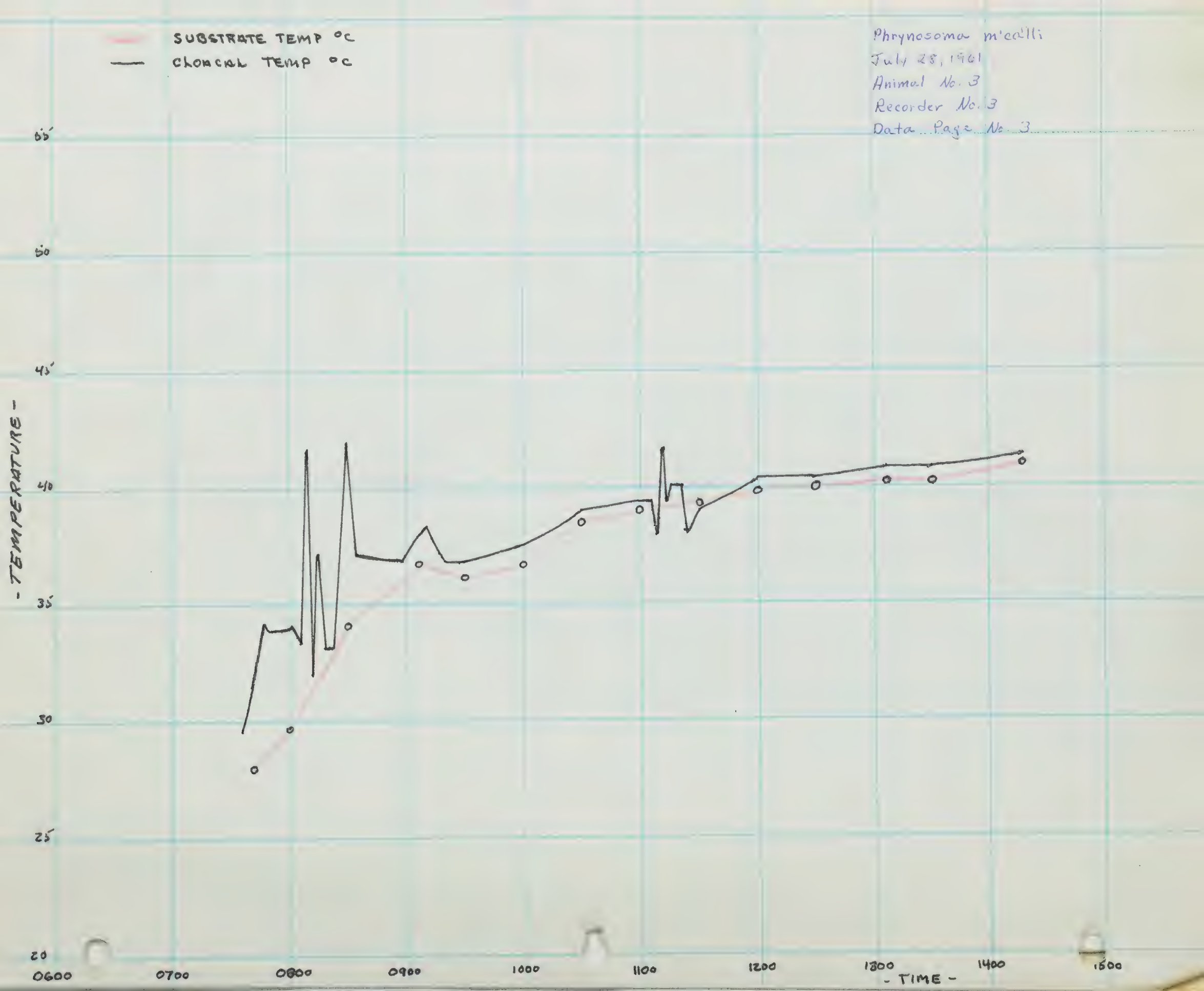
Phrynosoma m'calli
July 26, 1961
Animal No. 9
Recorder No. 1
Data Page No. 35




SUBSTRATE TEMP °C
CLOACAL TEMP °C
SPECIES: PHRYNOSOMA M'CALLI
DATE: 7/27/01
ANIMAL NO. 8
RECORDER NO. 2
DATA PAGE NO. 36
55
50
45
40
35
30
25
20
- TEMPERATURE -
0600
0700
0800
0900
1000
1100
1200
1300
1400
1800
2000
- TIME -

SUBSTRATE TEMP °C
CLOACAL TEMP °C

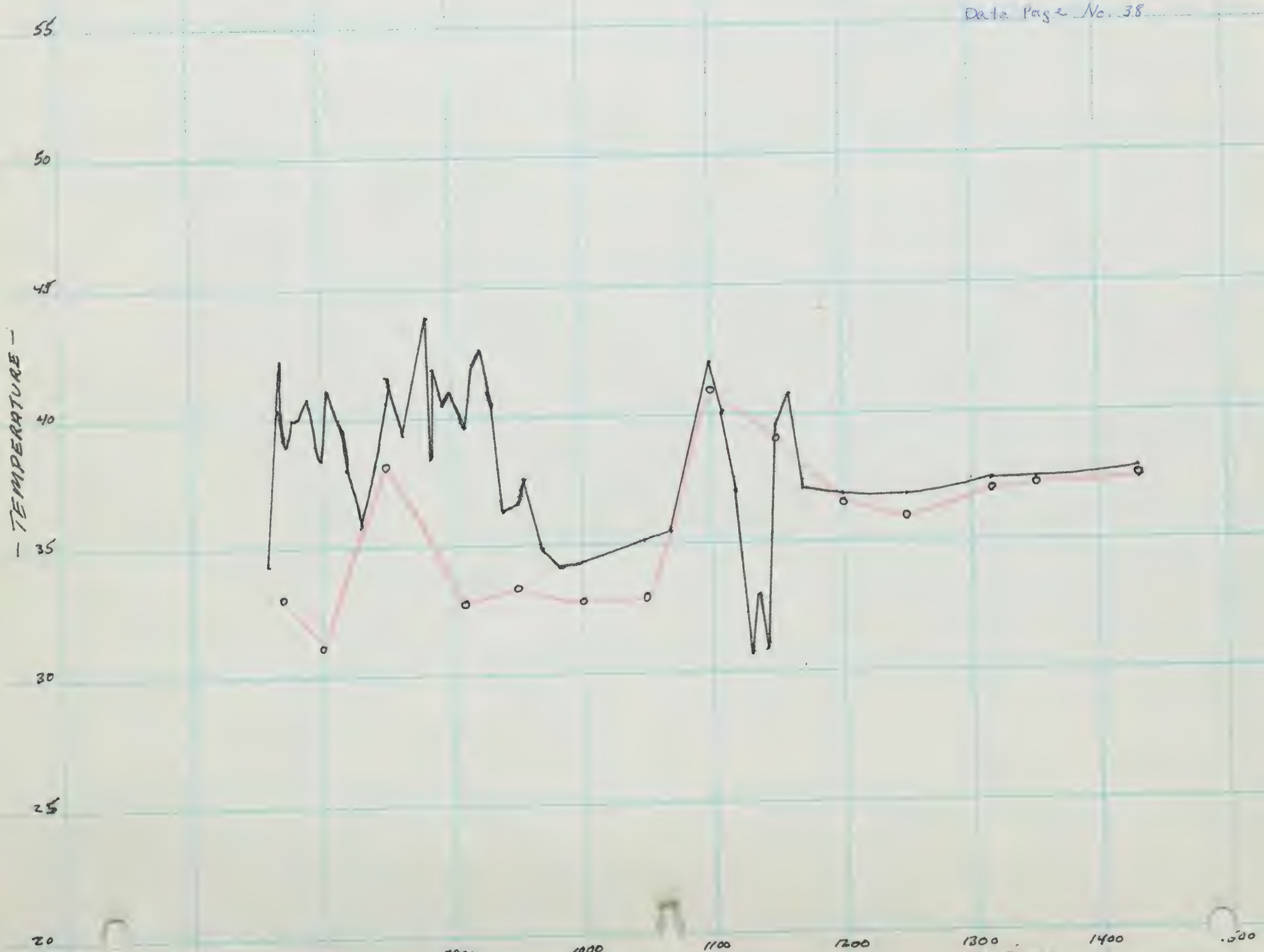
Phrynosoma m'callii
July 28, 1961
Animal No. 3
Recorder No. 3
Data Page No. 3

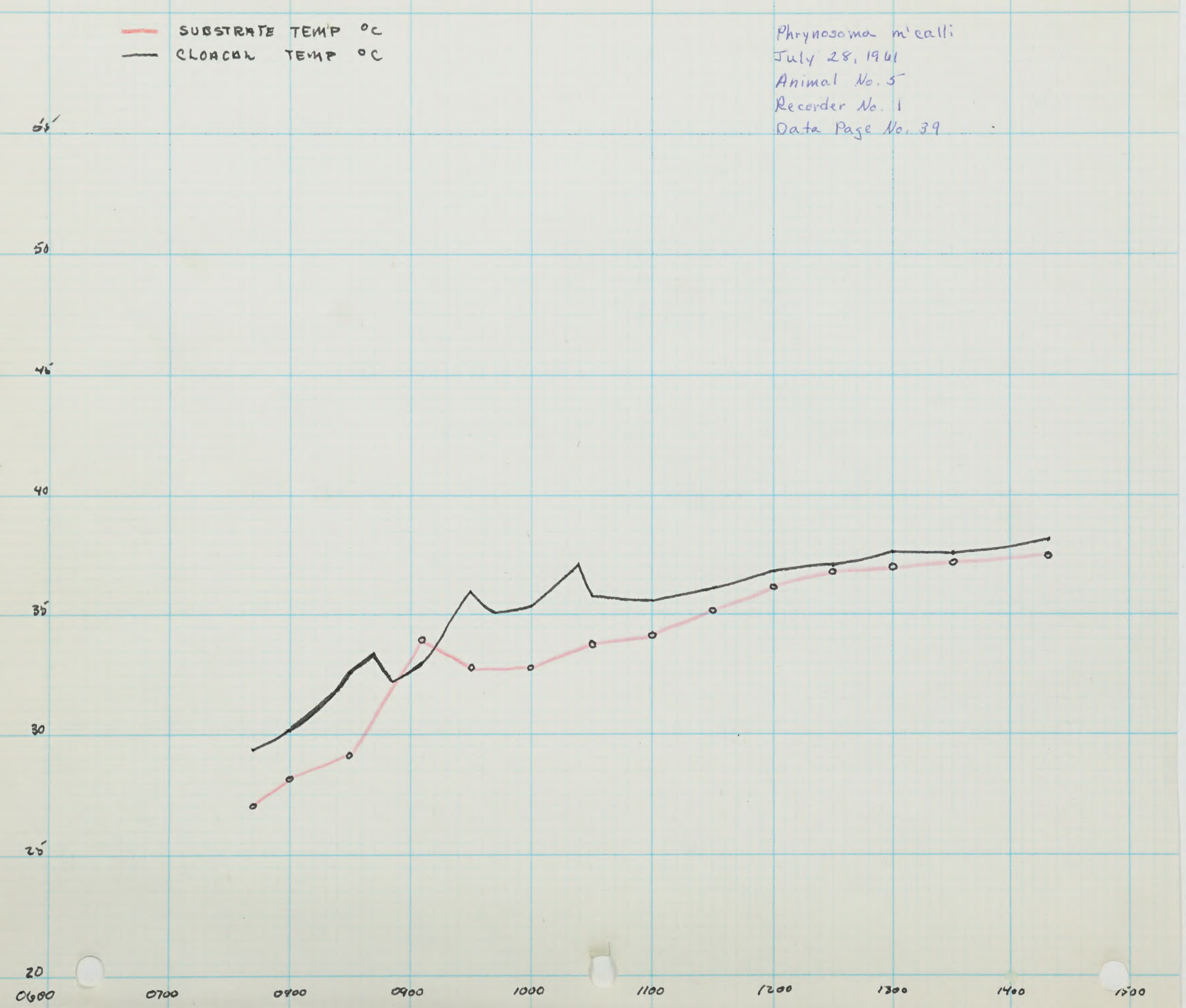


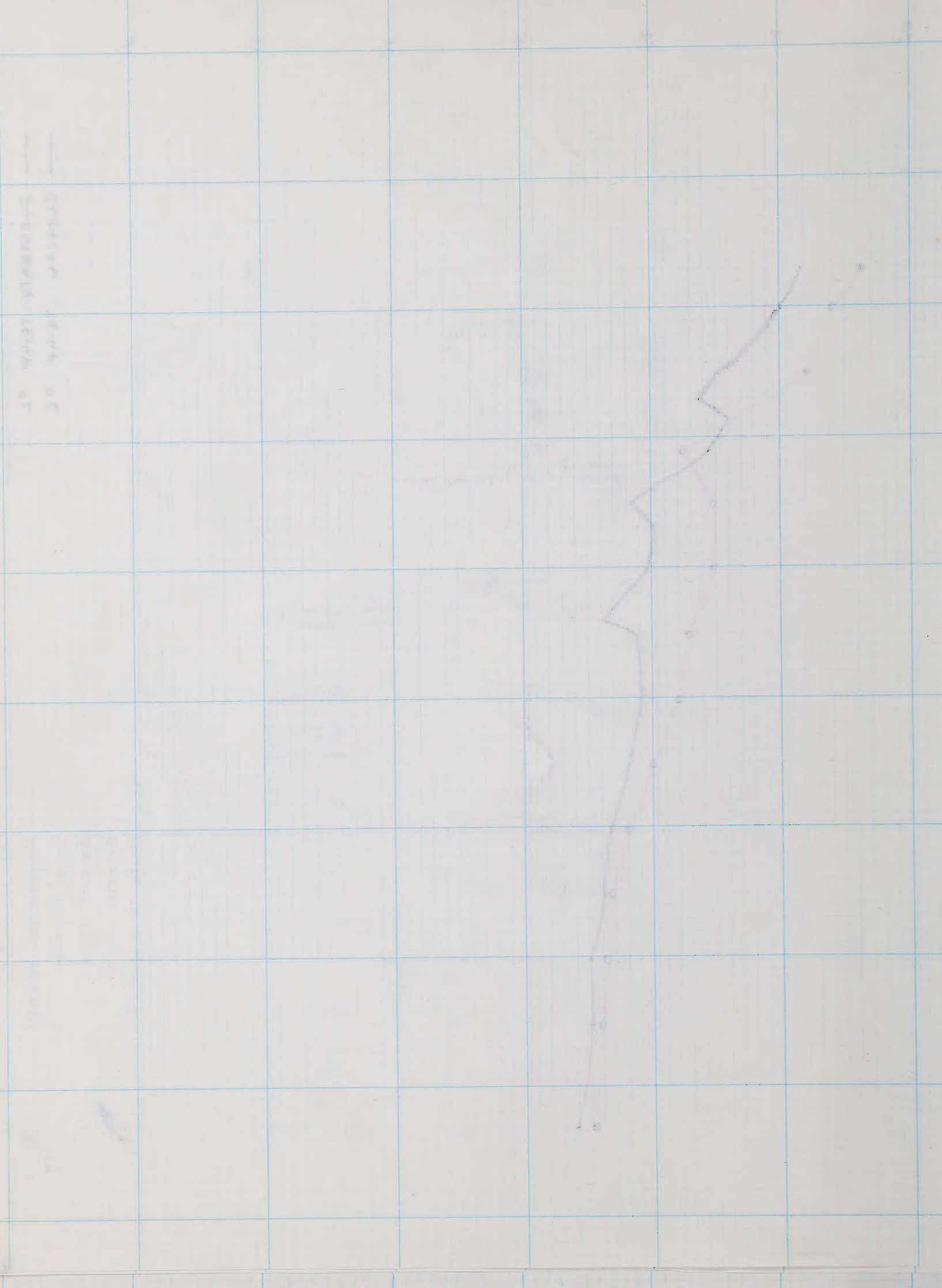
SUBSTRATE TEMP °C

CHORCAL TEMP °C

Phrynosoma m'calli
July 28, 1961
Animal No. 4
Recorder No. 2
Data Page No. 38




SUBSTRATE TEMP °C
CLOACAL TEMP °C
Phrynosoma m'calli
July 28, 1961
Animal No. 5
Recorder No. 1
Data Page No. 39
55
50
45
40
35
30
25
20
0600
0700
0800
0900
1000
1100
1200
1300
1400
1500



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STEEL BACKPLATE

S. E. & M. VERNON, INC.

U. S. A.